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TAXATION OF SAVING AND CONSUMPTION IN UNDERDEVELOPED COUNTRIES

RICHARD GOODE *

AN INCREASE in the saving-investment rate is one of the conditions of economic progress in the less developed countries. Most of these countries have accepted the goal of a mixed economy and are seeking means of increasing saving and capital formation in both the public and private sectors. Even in a country which assigns to the state the major share of investment, private saving may be an important source of finance for public investment. The U.S.S.R., for example, has not been oblivious of the advantages of promoting private saving and the sale of government bonds.

Tax revenues are the principal source of government saving, and taxation influences private saving because it affects incentives and capacity to save. Owing to the heavy responsibilities that governments are assuming, not only for capital formation, but also for the provision of current services, the underdeveloped

countries cannot promote saving merely by maintaining low taxes. Most underdeveloped countries need to raise more revenue, many of them, much more. Tax policy has the delicate responsibility of obtaining large amounts of revenue without unduly impairing private saving or, if feasible, by means that will stimulate private saving.

This paper considers the question whether the underdeveloped countries can devise and administer tax systems that will raise adequate amounts of revenue in socially and politically acceptable ways and at the same time allow or encourage desired increases in private saving. The paper examines some of the economic issues and problems of tax design that are met in efforts to draw up such a revenue system.

By concentrating on taxation I do not intend to imply that it is the most important influence on private saving or that variations of the tax system are the most efficient means of modifying the saving-income ratio. But, even if other policies are more significant, it does not follow that taxes exert only a trivial influence on saving.

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ALTERNATIVE APPROACHES AND THEIR RATIONALE

Programs for fostering private saving by means of the tax system range from broad prescriptions regarding the distribution of the tax load through detailed schemes of tax incentives and penalties. A general admonition that is heard from time to time is that progressive taxes should be minimized or wholly avoided in underdeveloped countries. A positive recommendation, which is usually thought to be practically identical with this advice although theoretically distinguishable, is that major reliance be placed on indirect taxes. Lately there has been considerable discussion of proposals for partial or complete exemption of saving under the income tax and for the imposition of a direct tax on personal consumption expenditures.

These programs are intended to concentrate taxation on consumption and to leave private saving either free of taxation or subject to lower rates of tax. It is usually taken for granted that this policy will promote private saving, but the basis of the belief is not obvious and is worthy of attention. There is no ground for supposing that even full tax immunity of saved income would eliminate the influence of taxation on the amount saved. Savers would make their decisions in the light of their position after allowance for consumption taxes and other taxes, and it would be surprising if these taxes did not affect both saving and consumption. Preferential taxation of saving by reliance on consumption taxes or other means may encourage saving for two reasons. First, the possible reward for saving will be higher than under a different tax system. Second, the capacity to save will be greater in the sense that potential

savers will have more resources at their disposal.

Progressive taxation of income will cut more deeply into the return on saving than will proportional or regressive taxation, if interest and profits receipts are a rising fraction of income as size of income increases. This is true in capitalistic countries but is less clearly so in preindustrial societies, where landowners are often the richest members of the community.

The terms of exchange between present and future consumption are more favorable to the latter under a system of consumption taxation than under a general income tax, and in this sense the reward for saving is greater under a consumption tax. Consider the alternatives open to a person subject to a 50 per cent income tax or a 100 per cent consumption tax. If in year 1 he receives 100 of income he will be liable for 50 of tax under the income tax. He can either consume the remaining 50 immediately or save and invest it and, at a market rate of interest of 5 per cent, realize a net return of 1.25 in one year (2.50 gross return minus 1.25 of income tax). Thus, by giving up 50 of present consumption he can enjoy 51.25 of consumption one year later. Under the consumption tax he can save and invest 100 in year 1 and have available 105 a year later, which will allow him to consume 52.50 at that time. In this case he exchanges 50 of present consumption for 52.50 of future consumption. The advantage to the saver under the consumption tax is due to the fact that postponement of consumption also postpones tax payment and allows the saver to receive interest on the postponed tax.¹

¹ See next page.

It is by no means certain, however, that an increase in the net rate of return obtainable on savings will stimulate additional saving. The effect is not clearly indicated by either economic theory or statistical observation.² Whereas some individuals might be induced to save more, others might save less because a smaller capital sum would satisfy their demands for retirement income, family security, and dowries. Many might not respond at all. Total personal saving might increase, decrease, or remain unchanged.

The uncertainty of the influence of the rate of return on the volume of saving may justify the neglect of the possibility of stimulating saving by preferential taxation of interest and profit income. The absence of proposals of this nature, however, is probably due

more to broad political considerations than to doubts about their effectiveness. The prevailing opinion throughout the world seems to be that justice demands that any differentiation in tax rates should run in favor of earned income rather than property income. Selective tax exemption of interest and profits from strategic sources is more acceptable on political grounds and is widely practiced. It is fairly certain that these schemes influence the allocation of savings among alternative uses, but it is not clear that they affect the total amount saved. Plans of this kind are not discussed in the present paper.

The capacity-to-save argument holds that aggregate saving can be increased by transferring taxation from those who are most inclined to save to those who are least inclined to do so; the capacity to save is increased where the inclination to save is strongest. It is not necessary that anyone change his attitude toward present and future consumption or accumulation. The community's saving ratio can be raised without altering the saving ratio of any individual, provided high savers are given command over a larger fraction of the resources available to the private sector.

This reasoning suggests that a tax on consumption will be more favorable to private saving than an equal-yield tax on income because the consumption tax will leave a larger proportion of real disposable income in the hands of those with higher-than-average saving rates. The argument, although plausible, is not conclusive. Differences in individuals' liabilities for the consumption tax and the income tax depend on the ratio of their total taxable consumption to their total taxable income, whereas the im-

¹ A 100 per cent consumption tax will yield less revenue than a 50 per cent income tax, if there is positive saving; but it can be shown that adjustment of rates to make the yields of the two taxes equal will not eliminate the advantage enjoyed by savers under the consumption tax. See A. R. Prest, "The Expenditure Tax and Saving," *Economic Journal*, LXIX (Sept. 1959), 483-90.

² There seems to be a growing tendency toward skepticism. Mill, Marshall, and Taussig conceded that individual reactions may differ but argued that on balance the total volume of saving is positively correlated with the interest rate. Wicksell, Knight, Keynes, and Joan Robinson stress the complexity and uncertainty of the relationship between thriftiness and interest rates. See John Stuart Mill, *Principles of Political Economy*, Book I, Chap. XI and Book IV, Chap. IV, sec. 3, ed. W. J. Ashley (London: Longmans, Green, 1929), pp. 163-75, 729; Alfred Marshall, *Principles of Economics*, 8th ed. (London: Macmillan, 1938), pp. 230-36; F. W. Taussig, *Principles of Economics*, 3rd rev. ed. (New York: Macmillan, 1923), Vol. II, pp. 20-33; Knut Wicksell, *Lectures on Political Economy*, trans. by E. Cassen, Vol. I (London: Routledge, 1934), pp. 207-18; Frank H. Knight, *The Economic Organization* (New York: Augustus M. Kelley, 1951), p. 115; John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace, 1936), pp. 93-94; Joan Robinson, *The Accumulation of Capital* (Homewood, Ill.: Irwin, 1956), p. 252.

pact on saving is governed by the use to which individuals will put comparatively small changes in their real disposable income. In short, the marginal propensity to save rather than the average propensity is the relevant characteristic.

Persons with high average propensities to save may also have high marginal propensities to save. The assumption that this is true implies only a certain continuity of behavior, after any initial lags associated with a change in disposable income have been overcome. No doubt, however, there are individuals who save a large fraction of their income at a certain time who would save little if any of an increment to income. They may have been accumulating for a specific purpose which has been satisfied, or they may have been paying off a mortgage or other long-term debt (a form of saving) and feel free to consume more after getting out of debt or meeting contractual installments. On the other hand, some families who have consumed all of their income may save a large part of an increase in income. But such sharp changes in behavior seem exceptional. Average saving ratios reflect age and family composition, tastes, habits, opportunities, and other factors which change slowly, and presumably these influences also determine marginal saving ratios.

It is easy to form an exaggerated impression of what can be accomplished by reallocating taxes between high and low savers. Differences between the impacts of alternative tax formulas will not be as great as differences between the marginal propensities to consume of high and low savers, provided that the choice of tax formula does not itself influence individual propensities to save. This is

true because all feasible measures impose taxes on both high and low savers; hence the effect on saving is a weighted average of high and low marginal propensities to save, with the weights depending on the amounts of tax paid. To illustrate, consider *A* and *B*, who have equal incomes but different saving behavior. Assume that *A*'s marginal propensity to save is 0 and that *B*'s is 20 per cent. If *A* is taxed while *B* goes free, private saving is unaffected; if *B* is taxed and *A* is not, saving is curtailed by 20 per cent of the revenue. There is, however, no feasible and socially acceptable means of taxing *A* while exempting *B*, unless they differ in characteristics other than saving behavior. The realistic alternatives are to tax both *A* and *B* on income, total consumption, selected items of consumption, or property. Under a general income tax *A* and *B* will pay equal amounts, and private saving will be reduced by 10 per cent of the revenue. If *A* and *B* are taxed in proportion to their total consumption, *A* will pay 5/9 of the aggregate tax and *B* 4/9; private saving will be reduced by approximately 8.9 per cent of the revenue.³ By selective consumption taxes, it may be possible to allocate a still larger share of taxes to *A* and other low savers; but *B* and other frugal people will have to bear part of the load.

³ Let y = income tax rate, c = consumption tax rate, $100 = \text{income of } A = \text{income of } B$. The yield of the income tax will be $100y + 100y = 200y$; saving will be reduced by $[0(100y) + .20(100y)] = 20y$; $\frac{20y}{200y} = .10$.

Under the consumption tax *A* will pay $100c$ and *B* will pay $(1-0.2)100c = 80c$; the total yield will be $180c$. The reduction in saving will be $[0(100c) + .20(80c)] = 16c$; $\frac{16c}{180c} = .0888$. Note that .10 and .0888 are weighted averages of 0 and .20, with weights varying with the proportion of the total tax yield paid by *A* and *B*.

The argument that regressive taxation (measured with respect to income) is more favorable to private saving than is progressive taxation may be viewed as an alternative approach to allocation of taxes between high and low savers. The assumption is that the marginal propensity to save rises with income size. This hypothesis has been supported by three kinds of evidence: (1) the common-sense belief that saving is hard for the poor but easy for the rich; (2) data from family budget studies conducted mostly in high-income, industrialized countries; and (3) the observation that national saving ratios tend to vary directly with income per head.

To a middle-class observer from North America or Western Europe it often seems that the poor in many underdeveloped countries live at the subsistence level and could not save if they wished to do so, whereas the rich must save inasmuch as there is positive private saving in most countries. This impression may be misleading. Social convention is probably more important than physiological necessity as a limitation on the saving capacity of a large majority of the population. Anthropologists tell us that in virtually all societies appreciable amounts of resources are used for ceremonial and other purposes that cannot be classified as physical necessities. These outlays often place heavy demands on the rich as well as the poor.⁴ The extravagant standards of personal consumption and hospitality of the rich in preindustrial societies are notorious. In these conditions it seems naive to suppose that saving habits are predictably related to size of income. Heavy sav-

ing may reflect deviant behavior rather than a large income; or, as the classical economists usually assumed, saving may be done almost exclusively by receivers of profits and interest.⁵

It is doubtful whether the findings of family budget studies in high-income countries have much value as an indication of saving behavior in the underdeveloped countries. Few scientifically designed sample surveys of this kind have been carried out in underdeveloped countries. Studies in Puerto Rico and Delhi, India, it is true, agree with American and British surveys in indicating negative saving ratios in the lowest income classes and increasing saving ratios in higher income classes.⁶ These data, however, measure average saving ratios rather than marginal propensities to save. They are not necessarily inconsistent with the existence of a uniform marginal propensity to save in the range

⁵ W. Arthur Lewis takes the classical view. He asserts, "The ratio of savings to national income is a function not just of inequality, but more precisely, of the ratio of profits to national income." In his opinion landed aristocrats, peasants, and members of the wage and salary earning classes do not save much, except possibly in situations in which there is a "capitalist example to imitate." *The Theory of Economic Growth* (London: Allen & Unwin, 1957), pp. 227-28.

⁶ Commonwealth of Puerto Rico, Department of Labor, Bureau of Labor Statistics, *Ingresos y Gastos de las Familias, Puerto Rico, 1953* (San Juan, 1960); Eleanor E. Maccoby and Frances Fielder, *Saving Among Upper-Income Families in Puerto Rico* (University of Puerto Rico Press, 1953); National Council of Applied Economic Research, *Delhi Saving Survey* (Bombay: Asia Publishing House, 1960); P. S. Lokanathan, "A Study of Saving in India," *American Statistical Association, 1959 Proceedings of Business and Economics Section*, pp. 236-241L. The Delhi survey indicated that, if household income is measured as a multiple of mean income and net investment in consumer durables is classified as saving, saving ratios in that Indian city in 1959 were as high as ratios for comparable incomes in the United States in 1950 and higher than in the United Kingdom in 1951-52 (*Delhi Saving Survey*, pp. 23, 24).

⁴ Melville J. Herskovits, *Cultural Anthropology* (New York: Knopf, 1955), pp. 160-64, *Economic Anthropology* (New York: Knopf, 1952).

where most income is found.⁷ It has been cogently argued, moreover, that the cross-section data provided by the single-year budget studies which are available give a misleading impression of the normal relationship between income and saving, exaggerating the difference between low and high incomes.⁸ Although important differences of opinion exist, there seems to be agreement among research workers in the field that, in the United States and Great Britain, the marginal propensity to save differs less between income classes than was formerly assumed on the basis of family budget surveys.⁹

The fact that the ratio of aggregate household saving to aggregate disposable income tends to be considerably higher in countries with high income per head than in low-income countries¹⁰ is con-

sistent with the hypothesis that the marginal propensity to save within countries varies directly with size of income. The correlation between national saving ratios and income per head is by no means perfect, however. Differences among countries may be due, not only to the level of income per head, but also to differences in the industrial composition of production, the factor distribution of income, social values, customs, and the security of property. The statistics, moreover, may exaggerate differences in saving ratios because of a tendency to understate saving in the underdeveloped countries in the form of precious metals (bullion, coin, and ornaments) and in the nonmonetized sector.

Even if we conclude that the weight of evidence—or intuition—indicates that the marginal propensity to save rises with size of income in all countries, we should recognize the existence of differences in saving patterns of families in the same income class. "The" saving ratio for an income class is an average derived from a distribution including some families with lower ratios and some with higher ratios. The distributions for adjacent income classes—and perhaps also for widely separated classes—overlap. In the United States, the Survey of Consumer Finances indicates that in 1950 consumer units making up the highest one-fifth of income recipients had an average net saving ratio twice the national average; nevertheless, 38 per cent of these units had saving ratios below the national average, and 22 per cent of them were negative savers. About 23 per cent of consumer

⁷ If saving is a linear function of income and the intercept of the saving curve is negative (indicating dissaving at zero income), saving will be a larger fraction of high incomes than of low incomes, but the marginal propensity to save will be the same for all income levels. Under these conditions the degree of tax progressivity will not affect the amount of private saving.

⁸ William Vickrey, "Resource Distribution Patterns and the Classification of Families," in Conference on Research in Income and Wealth, *Studies in Income and Wealth*, Vol. X (New York: National Bureau of Economic Research, 1947), pp. 272-74, 287-95; Milton Friedman, *A Theory of the Consumption Function* (Princeton: Princeton University Press, 1957); Franco Modigliani and Richard Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," in *Post-Keynesian Economics*, ed. Kenneth K. Kurihara (New Brunswick, N. J.: Rutgers University Press, 1954), pp. 333-436.

⁹ An extensive literature has grown up in recent years. Several valuable papers have appeared in the *Bulletin of the Oxford University Institute of Statistics*, 1956-60, and in *Consumption and Saving*, ed. Irwin Friend and Robert Jones (Philadelphia: University of Pennsylvania, 1960).

¹⁰ Simon Kuznets, "Quantitative Aspects of the Economic Growth of Nations: V. Capital Formation

Proportions: International Comparisons for Recent Years," *Economic Development and Cultural Change*, VIII (July 1960, Pt. II), 74, 95-96.

units in income classes below the top fifth had net saving ratios equal to or higher than the average ratio for the top income group.¹¹ Size of income is at best a rough method of classifying individuals according to saving propensities. A decrease in tax progressivity will augment the disposable income of rich spendthrifts as well as high savers.

None of the approaches, it seems, can confidently be expected to bring about a significant increase in private saving. All rest on questionable assumptions. Proposals for concentrating taxes on consumption and exempting saving or taxing it lightly are perhaps more firmly based than suggestions for preferential taxation of interest and profits and the avoidance of progressivity. The former, moreover, clash less openly with political values that have been spread around the world by the same social currents that have awakened the desire for progress and brought about the adoption of development programs. The remainder of this paper will be devoted to direct and indirect taxes on consumption and plans for exempting saving from income taxes. Although the extent of the influence on private saving of these measures is uncertain, they can be presumed to have some favorable effect, and they would at least leave the way open for an increase in private saving due to other policies and to social and economic change.

OBJECTIONS TO EFFORTS TO PROMOTE SAVING BY TAX MEANS

Before proceeding to a more detailed examination of means of taxing consumption with the objective of promot-

ing saving, let us consider some possible limitations and objections of a general nature.

The argument that urgent revenue needs prevent tax concessions to saving has little merit. Inasmuch as private consumption represents a large proportion of total income at the disposal of the private sector in the underdeveloped countries, the tax base would not be greatly narrowed even if all private saving were exempt from taxation. Particular schemes for encouraging saving, of course, may jeopardize revenue yields, but this need not be true of all plans.

The objection that the taxation of consumption will retard development because it will narrow the market is also unconvincing. This objection implies that the underdeveloped countries can curb private consumption only at the risk of stagnation. One of the platitudes of the literature of economic development is that countries trying to speed progress nearly always face inflationary dangers due to excessive demand; the absence of such pressures has come to be taken as proof that the development plan is too modest. However, sectional difficulties are possible even when aggregate demand is ample or excessive. High excise taxes on certain items may discourage industries that could play a strategic role in economic progress. Hirschman has stressed the importance of certain industries in stimulating other industries that supply materials to them or that use or distribute their products ("backward and forward linkages").¹² If brewing, for example, is such an industry, as it seems

¹¹ Derived from "1951 Survey of Consumer Finances," *Federal Reserve Bulletin*, August 1951, September 1951.

¹² Albert O. Hirschman, *The Strategy of Economic Development* (New Haven: Yale University Press, 1958).

to have been in several Latin American countries, a degree of restraint in taxing beer may contribute to development at certain stages. The argument cannot be generalized; it must be confined to strategic products and industries. An increase in saving, brought about by taxation or other means, must restrict demand for consumer goods and hence must damage the market for many products.

The promotion of private saving, as already indicated, does not necessarily mean that private investment will be enlarged relative to government investment. Decisions with respect to the allocation of investment are separable, in principle at least, from policies regarding saving. The government can borrow if private saving exceeds the amount of investment that the authorities wish to allow the private sector to undertake. Some methods of stimulating saving, to be sure, involve the encouragement of private investment as well.

A more substantive objection relates to the distribution of income and wealth. Even if a country does not eschew progressivity, a tax system designed to promote private saving may well be less progressive than a system worked out with little regard to that objective. An increase in private saving, moreover, necessarily implies the accumulation of private wealth and the rise of interest and profit income, which involve not only inequalities in consumption power but also, in most societies, distinctions in status that may be odious to egalitarians. A high rate of private saving, however, does not necessarily result in a cumulative rise in the share of income received by an identical top group or in greater inequality than

now exists in the poor countries. Economic growth is accompanied by many changes in the composition of output and employment and in relative income and wealth of different groups.¹³

Perhaps the most important limitations on a policy of taxing consumption arise from possible discouragement of participation in the market economy and the curtailment of expenditures which, although classified as consumption, contribute to productive capacity. Certain items are so attractive that, if they are available at reasonable prices, farmers and villagers may be induced to increase output and bring more produce to market in order to earn money to buy the goods. Possible examples of such incentive goods in Asia and Africa are kerosene and bicycles. Marshall recognized the importance of what may be called "productive consumption" when he wrote, "... a great part of the wages of the working classes is invested in the physical health and strength of their children. The older economists took too little account of the fact that human faculties are as important a means of production as any other kind of capital. . . ." ¹⁴

General Comments on Methods of Taxing Consumption

Methods of taxing consumption that will be further examined in this paper are (1) an income tax with saving partially or wholly exempt; (2) a personal expenditure tax or spendings tax; and

¹³ Simon Kuznets, "International Differences in Capital Formation and Financing," in *Capital Formation and Economic Growth*, Conference of the Universities-National Bureau Committee for Economic Research (Princeton: Princeton University Press, 1955), pp. 82-98.

¹⁴ Alfred Marshall, *Principles of Economics*, 8th ed. (London: Macmillan, 1938), p. 229.

(3) indirect taxes in the form of excises, sales or turnover taxes, and customs duties. A policy of attempting to foster private saving involves not only reliance on taxes on consumption but also avoidance of taxes that are especially destructive of saving. Inasmuch as the latter taxes often do not yield large sums, especially in the less developed countries, the fact that a government raises a large proportion of its revenue from consumption taxes is not necessarily proof that it offers favorable treatment to private saving.

The indirect taxes on consumption are well known. Exemption of saving from the income tax is not so familiar, but the general import of this proposal is easily visualized. The personal expenditure tax is a direct tax on consumption expenditure; like the income tax it can incorporate personal exemptions, allowances for dependents, and graduated rates. Irving Fisher was a well-known advocate of such a tax, although he insisted on calling it an income tax since he defined personal income as equal to consumption.¹⁵ The U.S. Treasury recommended a graduated spendings tax on personal consumption during World War II,¹⁶ but the recommendation was rejected by Congress. More recently, Kaldor revived interest in the idea through a book published in 1955 and reports to the governments of India and Ceylon.¹⁷ These

two countries adopted expenditure taxes of limited scope, India in 1957 and Ceylon in 1959.¹⁸

A personal expenditure tax and an income tax with saving exempt are similar in that both are direct taxes falling on consumption. As explained in a later section, the two taxes would be assessed in much the same way. In practice, however, there are likely to be differences in coverage and rate structures.

Inasmuch as indirect taxes are traditional in most underdeveloped countries, the question may be raised how the policy under discussion differs from existing practice. Although this method of attempting to foster saving would be less novel than the other two, its consistent application would involve revision of the tax systems of most countries. Indirect taxes are now often imposed on capital goods as well as consumption goods. This is particularly true of import duties and not solely or even mainly for protectionist reasons. Taxes are often low and sometimes are not imposed at all on important kinds of consumption goods and services. A number of countries which obtain most of their revenue from indirect taxes nevertheless impose high rates of taxation on income, profits, and certain business enterprises.

In the following paragraphs the three methods are compared regarding cov-

¹⁵ Irving Fisher, "Income Theory and Income Taxation in Practice," *Econometrica*, V (Jan. 1937), 1-55; Irving Fisher and Herbert W. Fisher, *Constructive Income Taxation* (New York: Harper & Brothers, 1942). The book contains a bibliography at pages 249-60.

¹⁶ *Annual Report of the Secretary of the Treasury*, 1943, pp. 410-20.

¹⁷ Nicholas Kaldor, *An Expenditure Tax* (London: Allen and Unwin, 1955); *Indian Tax Reform, Re-*

port of a Survey (New Delhi: Ministry of Finance, Government of India, 1956); *Suggestions for a Comprehensive Reform of Direct Taxation* [in Ceylon], Sessional Paper IV, 1960 (Colombo: Government Press, Ceylon, 1960).

¹⁸ Harvard Law School, International Program in Taxation, World Tax Series, *Taxation in India* (Boston: Little, Brown & Co., 1960), pp. 421-34; Richard Goode, "New System of Direct Taxation in Ceylon," *National Tax Journal*, XIII (December 1960), 329-40.

erage and selectivity and progressivity. Problems of tax design and application are examined in a later section.

Coverage and Selectivity

The expenditure tax, in pure form, distinguishes only between consumption and saving and, when graduated, amounts of personal consumption; it does not differentiate between kinds of consumption and forms of saving. The same tax rates apply to spending for imports and home goods, goods that are plentiful and those that are in short supply, items whose production competes directly with the development program and other items. Expenditures for education and cultural activities are taxed in the same way as spending for automobiles and fashionable clothes. The expenditure tax exempts all non-consumption uses of income and wealth including hoarding, real estate purchases, capital flight, and other activities that the authorities may wish to discourage rather than stimulate.

A system that exempts all saving from income tax is as unselective as the expenditure tax. In practice, however, exemption is likely to be granted only for forms of saving that are considered desirable or innocuous. For example, a tax remission may be allowed for purchases of government securities or shares in approved industries and for bank deposits but denied for saving embodied in currency hoards, gold, and foreign securities.¹⁰ Desirable forms of consumption can be favored by allowing the taxpayer to deduct specified personal expenses when he computes his taxable income, but this method of differentia-

tion has limited flexibility. It can be applied only to items for which reasonably accurate information on individual expenditures is available; furthermore expenses are usually deductible in full or not at all and hence are subject either to the regular income tax rate or a zero rate.

The pure expenditure tax, of course, may be modified to exempt certain consumption outlays, but, like the income tax, it lacks flexibility as a means of differential taxation of consumption. Distinctions between forms of saving are less likely under the expenditure tax than under the modified income tax since the expenditure tax focuses on consumption as the tax base rather than on the concession offered to saving.

A difference in coverage of the expenditure tax and an income tax with saving exempt is that the expenditure tax base includes consumption financed by disposal of wealth as well as that supported from current income whereas the modified income tax may not reach this part of consumption. The importance of this difference depends largely on the length of the period for which tax is assessed. Dissaving is much more likely to occur in a short period than in a long period. It may reflect fluctuations in income or irregularities in spending. In Western societies different rates of saving and consumption are characteristic of different phases of family life; saving tends to be concentrated in the middle years with dissaving occurring in earlier and later years. As will be brought out more fully in a later section, a degree of averaging to eliminate year-to-year fluctuations would be highly desirable under either an expenditure tax or a modified income

¹⁰ See the suggestions of Raja J. Chelliah, *Fiscal Policy in Underdeveloped Countries* (London: Allen and Unwin, 1960), pp. 67-71.

tax. The longer the averaging period, the less the difference in coverage of the two taxes. With lifetime averaging, the principal difference would be that the expenditure tax would strike consumption financed by using up inherited wealth whereas the income tax with saving exempt would not. Another difference in coverage, which may be more significant, is that the expenditure tax will reach consumption financed from capital gains, gifts, and other receipts which are not included in taxable income. In India, the possibilities of broader coverage of the expenditure tax have not been fully exploited. The tax does not apply to persons who, together with their dependents, receive from all sources an annual income of less than Rs.36,000 after deduction of Indian income taxes.²⁰ Thus the expenditure tax does not reach certain extreme forms of dissaving or consumption financed from gifts but presumably does apply to consumption paid for out of tax-exempt income.

Indirect taxes are necessarily selective or discriminatory regarding forms of consumption and nonselective regarding means of finance. They apply unequally to different items of consumption but equally to expenditures financed from capital and those made out of income. Indirect taxes may also apply to capital goods and to certain forms of financial saving. Special taxes on security transactions are common, and in the Federal Republic of Germany the general turnover tax applies to gold transactions.²¹

²⁰ *Taxation in India*, p. 425. Rs. 36,000 is more than 100 times the national income per head (*International Financial Statistics*, July 1961, p. 150; United Nations, *Monthly Bulletin of Statistics*, June 1961, p. 2).

²¹ International Monetary Fund, *Annual Report*, 1959, p. 157.

Selectivity with respect to both items of consumption and forms of saving can be attained by combining indirect taxes with exemptions for enumerated forms of saving under the income tax.

Selectivity of taxation is not universally approved. According to one view, selectivity or discrimination should be avoided because it distorts the allocation of resources through the market. Formally stated, the argument identifies selectivity as the source of an "excess burden" attributable to taxes that alter relative prices. Economic planning, however, is a process of selection even when not comprehensive or highly detailed. Few officials or legislators will be much impressed by a general argument against selectivity. They will be concerned with the political acceptability and efficiency of selective measures.

Progressivity

Much of the appeal of the expenditure tax and of the income tax with certain forms of saving exempt is due to the fact that these taxes can incorporate personal exemptions and graduated rates. The taxes are progressive with respect to consumption and are likely to be progressive also with respect to income. Whether they are more or less progressive with respect to income than an ordinary income tax depends on the rate structures and the relation between income and consumption expenditures over the relevant range of the income distribution. There seems to be a fair presumption that the maximum nominal rates of an expenditure tax would exceed the top rate of the modified income tax. Income tax rates are limited by a strong aversion to rates in excess of 100 per cent, but this tradition does not exist for the expenditure tax and

rates above 100 per cent presumably would be less objectionable in an expenditure tax than in an income tax.

Most indirect taxes of large yield are commonly believed to be regressive, and there is statistical evidence to support this evaluation for some of the principal indirect taxes in certain of the richer countries. In the underdeveloped countries there is a strong presumption that the traditional levies on salt and sugar are decidedly regressive (except possibly where these items are extensively produced in the nonmonetized sector). Taxes on articles such as common cloth, matches, tobacco, and beer are probably also regressive over middle and upper income ranges but may not be regressive at the lower end of the income distribution, especially in countries where a considerable part of the population is employed mainly in subsistence agriculture or village economies with only limited participation in the monetized sector. Consumption of items such as automobiles, radios and other electrical appliances, the better grades of textiles, most cosmetics, and distilled spirits is still confined mainly to a fairly small and prosperous class in many underdeveloped countries. Taxes on such items may be progressive up to a rather high income level in these countries.

A judgment that the whole system of indirect taxes is regressive need not depend on the assumption that the marginal propensity to consume declines as income rises. Indirect taxes are usually low or nonexistent on many items that are important in the consumption patterns of upper income groups in the underdeveloped countries, including, for example, personal services of household servants and others, luxury foods of local origin, and foreign travel.

Although it may not be feasible to impose taxes on many services, it may be possible to devise indirect tax systems which are not highly regressive. On the basis of survey data, estimates have been made indicating that the system of indirect taxes in India is mildly progressive with respect to total consumption expenditures of both rural and urban households.²² This finding can support an inference about progressivity in the conventional sense, that is with respect to income, only on the basis of further assumptions or evidence concerning the relation between total consumption and income. An earlier study indicated that the consumption taxes of El Salvador were somewhat progressive with respect to income up to a fairly high level.²³

TAX DESIGN AND ADMINISTRATION

Difficult problems are encountered in the design of direct-tax provisions to favor saving. Less serious but still genuine problems are involved in the refinement of indirect taxes to help advance the social and economic objectives of the underdeveloped countries. The challenge is to design measures that are as consistent and logical as possible in allocating taxes in a manner calculated to achieve the objectives and which are within the administrative and compliance capabilities of the country. This includes the devising of return forms and information reports and the drawing up of detailed rules of tax assessment as well as the clarification of grand policy issues and the explanation of pro-

²² Government of India, *Report of the Taxation Enquiry Commission, 1953-54* (New Delhi, 1955), Vol. 1, p. 69.

²³ Henry C. Wallich and John H. Adler, *Public Finance in a Developing Country* (Cambridge, Mass.: Harvard University Press, 1951), pp. 132-34.

posals to political leaders and the general public. Lack of attention to tax design may result in inaction or the adoption of measures that fail to produce the desired results and that have harmful side effects on economic progress, respect for law, and political maturity.

General economists have displayed great interest in tax policy but have usually left questions of tax design to the specialists. Tax administrators and technicians, like specialists in many other fields, tend to resist innovations. Neither the general economists nor the technicians have given enough thought to the irksome details that determine the practicability of fundamental revisions of the tax system.

Kaldor is a conspicuous exception to the statement that economists have not worked out the details of measures to put into effect their broad tax proposals. His reports on India and Ceylon display great ingenuity in this respect. These reports, together with Kaldor's earlier book on the expenditure tax, have stimulated a lively interest in ideas that had long been considered attractive but impracticable. Kaldor may have given too little weight to administrative and compliance problems, but he cannot be accused of ignoring them.

More space is given in the following pages to questions of tax design that would arise in any country setting out to give preferential tax treatment to saving than to the special problems of the underdeveloped countries. I have not stressed the environmental conditions that severely limit the successful application of direct taxes in most underdeveloped countries.²⁴ The omission in-

volves a loss of realism but has the advantage of allowing us to concentrate on problems that have received less notice than the general deficiencies of tax administration and compliance in the underdeveloped countries.

Exemption of Saving under the Income Tax

The suggestion that saving be exempt from income tax or taxed at lower rates than other income may appear to be simple but on closer examination will be seen to entail complications. It would not be easy to define and measure saving, to prevent tax evasion, and to assure equitable treatment of persons who save in some years and dissave in other years.

Let us consider first a broad scheme providing tax exemption or preferential rates for the part of current income that is saved, regardless of the form in which the savings are held. If taxable income were measured, as recommended by Haig, Simons, and other students, as the algebraic sum of consumption and changes in net worth,²⁵ no special difficulty would be involved in putting into effect this scheme. The general practice, however, is to define taxable income by enumeration of includable receipts and allowable deductions. The assessment of income does not produce a figure for saving. Therefore, the authorities and taxpayers would have to go through all of the steps that are now required for the determination of taxable income and the additional steps necessary to measure saving.

²⁵ Robert Murray Haig, "The Concept of Income—Economic and Legal Aspects," in *The Federal Income Tax*, ed. Haig (New York: Columbia University Press, 1921), pp. 1-28, reprinted in American Economic Association, *Readings in the Economics of Taxation* (Homewood, Ill.: Irwin, 1959), pp. 54-76; Henry C. Simons, *Personal Income Taxation* (Chicago: University of Chicago Press, 1938).

²⁴ For a brief summary, see my paper, "Reconstruction of Foreign Tax Systems," *Proceedings of the National Tax Association*, 1951, pp. 213-15.

In principle, saving could be measured as the difference between current income and consumption outlays or by the identification of increases in various forms of asset during the year. Few families, however, keep records of their consumption expenditures and even when available such accounts could not easily be verified. There is general agreement that the subtraction method is not practicable and that saving would have to be measured by the increase in assets. The authorities would have to require taxpayers to present evidence on all holdings of securities, real property, direct investment in business enterprises, cash balances, gold bullion, and perhaps other assets.

It would not be sufficient merely to ascertain new purchases of assets or increases in bank balances during the year. The scheme would be defeated if taxpayers could gain tax exemption by converting assets, that is, by selling one kind of asset and buying another or by borrowing and purchasing an asset. A measure of the net increase in all assets would be needed. This might be obtained from a full list of all capital transactions—purchases and sales of assets, gifts received and given, debts contracted and repaid, increases and decreases in cash balances, and certain other items. A better method, and indeed the only way of making sure that no changes were omitted, would be to examine complete balance sheets of each taxpayer for the beginning and end of the year. Comparative balance sheets would be highly useful also for the determination of net income and would be helpful in the assessment of an ordinary income tax. However, the authorities have not considered it feasible to

require balance sheets of individual taxpayers who are not engaged in trade or business even in the countries with the most advanced tax administrations.

It would be especially important to obtain accurate balance sheets at the time the new plan went into effect. Taxpayers would have an incentive to conceal cash and other liquid assets because by converting these assets over a period of years they could appear to be accumulating new savings and could thus qualify for tax benefits. In addition, many persons would be reluctant to divulge their true assets because of fear of revealing past tax evasion and of exposing themselves to exchange controls and expropriation.

In countries that do not tax capital gains, information on capital transactions is not generally required for assessment of income tax. For these countries the introduction of an exemption for saving would greatly increase the scope of reporting and verification. Countries which now tax capital gains would not have to undertake a completely new activity, but they would face enforcement problems. One of the most difficult points would be the ascertainment of changes in cash balances (including bullion and, in some societies, ornaments), not required for assessment of capital gains tax but essential for the measurement of net saving.²⁶ The exemption of saving from the income tax would increase incen-

²⁶ In my opinion William Vickrey overstates the case when he asserts that, for high-income persons, there is "very little difference" between the administrative complications of an expenditure tax and an income tax including capital gains and losses ("Expenditure, Capital Gains and the Basis of Progressive Taxation," *Manchester School of Economic and Social Studies*, XXV [January 1957], 18-20).

tives for omitting transactions in which gains occurred and for understating gains. Taxpayers who did so would not only escape capital gains tax but would also acquire funds that could be used to purchase other assets or increase cash balances and thus to serve as evidence of "saving" that would entail a reduction in regular income tax liability. Of course, some moderation would have to be exercised in taking advantage of this means of evasion. Alert tax officials would become suspicious of persons who reported a high rate of saving if their living habits were obviously inconsistent with the indicated scale of consumption.

The saving and consumption elements cannot be readily distinguished in some transactions. Examples are purchases of jewelry and other durable consumer goods, purchases and maintenance of dwellings, payments of life insurance premiums, and expenditures for education. More or less arbitrary rules already apply to several of these items under the income tax, and similar conventions would have to be worked out to separate consumption and saving elements. An acceptable treatment would complicate administration but would not present unique or insuperable difficulties.²⁷

Administration could be simplified by limiting the tax exemption to savings invested in a few kinds of asset, say government bonds, shares and bonds or debentures of approved private enterprises, and savings accounts in banks and similar institutions. It would be possible to require that all eligible se-

curities be in registered form rather than bearer form in order to facilitate verification of claimed changes in holdings. This scheme would not provide tax exemption for net saving as such but for the acquisition of the designated assets. There would be nothing to prevent the taxpayer from acquiring the eligible assets by converting other assets.

Underdeveloped countries are concerned with the form in which savings are held as well as with the rate of total saving. As already noted, a degree of selectivity in tax concessions for saving would no doubt be regarded as an advantage by most governments. Too narrow and rigid a provision governing eligibility for special treatment, however, would sacrifice much of the advantage of private saving and investment compared with direct state investment, while retaining the conditions making for economic and social inequality. On the other hand, extension of the list of eligible assets would lead toward the problems associated with a general exemption.

A serious difficulty that is often overlooked relates to the length of the assessment period.²⁸ The purpose of a tax concession for saving is to encourage a permanent—or at least a long-term—increase in savings or in holdings of certain assets. This purpose would not be served by acts of saving which were soon reversed or offset by dissaving. Some means would have to be found to prevent a taxpayer from qualifying for an exemption say every second year by alternately building up and drawing down his savings. Opportunities of

²⁷ See William Vickrey, *Agenda for Progressive Taxation* (New York: Ronald Press, 1947) for a discussion of such items under the income tax and the expenditure tax.

²⁸ Chelliah, *op. cit.*, pp. 72-73, recognizes the existence of these problems but does not examine them in detail.

this kind would be limited by the desire to avoid violent fluctuations in consumption, but many possibilities of illegal evasion and legal avoidance would suggest themselves to imaginative taxpayers, for example, the use of personal loans or open accounts not revealed to the tax assessor to finance consumption in the years of nominally high saving and the scheduling of vacation trips and other postponable expenditures in alternate years.

Three means suggest themselves for dealing with ascertainable dissaving that follows a year in which an exemption has been granted for saving. The return of the earlier year could be reopened and tax reassessed, the dissaving could be added to taxable income in the year in which it occurred, or income tax could be assessed on the basis of a cumulative averaging plan covering several years or perhaps the taxpayer's whole life. Reopening of returns is troublesome, and most tax administrators like to minimize the extent to which it is necessary. The addition of dissaving to current taxable income seems preferable but, with progressive rates, could result in hardships for taxpayers or opportunities for manipulation. Cumulative averaging is an attractive idea even in an undifferentiated income tax; however, most countries have considered it too complex.

Expenditure Tax

The expenditure tax would be administered in almost the same way as an income tax with all saving exempt. The assessment procedure recommended by Kaldor is as follows: (1) all receipts from current net income, sale of assets, borrowing, gifts, inheritances, and other sources would be aggregated; (2) deductions would be allowed for gross

saving in the form of additions to cash balances, investment outlays, and debt repayment; (3) deductions would also be allowed for any consumption expenditures exempt from tax and for certain direct tax payments; and (4) tax would be assessed on the balance, representing taxable consumption expenditures. As under the income tax with saving exempt, problems would arise in obtaining complete and accurate balance sheets (or comprehensive statements of capital transactions), in identifying the consumption and saving elements of certain transactions, and in fairly assessing tax on fluctuating levels of consumption.

The point of departure for a successful expenditure tax would be an accurate determination of net income. The addition of balance sheet data, essential for the expenditure tax, would facilitate the determination of income. On the other hand, the imposition of a steeply graduated expenditure tax or the addition of the expenditure tax to an income tax would increase incentives to classify personal consumption items as business expenses in the form of entertainment, travel expenses, and the like—an especially troublesome form of income tax evasion.

Sentiment could be expected for tax exemption for meritorious or unusual items of consumption such as medical expenses, educational expenses, election expenses, legal expenses, funeral expenses, marriage and birth expenses, and expenditures for religious purposes. Several of these items are exempt from expenditure tax in India and Ceylon. Such exemptions introduce an element of selectivity which may be desirable but also may open the way for the erosion of the expenditure tax base just as deductions and exclusions have nar-

rowed the income tax base in many countries.²⁹

Provision for spreading outlays for consumer durables over a period of years, by means of averaging or capitalization and taxation of the annual imputed service value, would be necessary for equity under a graduated expenditure tax.

Kaldor's reports on India and Ceylon and public discussions in these countries laid great stress on the advantages of an interlocking system of taxes and reports covering income, capital gains, wealth, and consumption expenditures. Space is not available here for a description of the tax systems of India and Ceylon or for a critical examination of the contention that they constitute "self-checking" systems.³⁰ It can be said that the combination of a wealth tax with an expenditure tax would discourage evasion of the expenditure tax through overstatement of saving because a person would thus subject himself to additional wealth tax. The force of this deterrent would depend on the rates of the two taxes, the time preferences or rates of discount applied by taxpayers to future liabilities, and the care with which the authorities integrated assessments of the two taxes. The addition of a wealth tax would not prevent concealment of income, expenditures, and assets or other forms of outright fraud.

Indirect Taxes on Consumption

The effective use of indirect taxation

²⁹ Kaldor is critical of the exemptions under the Indian expenditure tax (*Economic Weekly Annual* [Bombay], January 1959, pp. 195-98).

³⁰ See my paper on Ceylon, *National Tax Journal*, December 1960, *op. cit.*, and references cited in it.

as an instrument of economic policy in the underdeveloped countries depends on the remedying of the defects already mentioned. Some of these are easily righted; others are much more difficult to deal with. Taxes on capital goods, for example, can be largely eliminated although they cannot well be entirely abolished because some items, such as passenger automobiles and sewing machines, are both consumer goods and capital goods.

Luxuries cannot be clearly distinguished from essentials. To a considerable extent, luxurious consumption consists in the liberal use of items such as food, clothing, and housing which are plainly essentials in some amounts. Differentiation on the basis of price or quality seems advisable even though it complicates administration. The experience of the United Kingdom with "utility goods" under the purchase tax during and after World War II may be instructive in this connection. Identification of luxury consumption is perhaps somewhat easier in the underdeveloped countries than in the economically more advanced countries because the consumption patterns of the rich and the poor differ more sharply in the underdeveloped countries. Often the higher income groups tend to prefer imported goods, and some differentiation is possible through customs duties. Care is advisable, however, to avoid setting up such high protective barriers that inefficient local production of non-essentials is unduly stimulated. Such industries have sometimes been brought into existence by import controls and exchange restrictions.

Ad valorem rates are usually preferable to specific excises because they impose heavier taxes on expensive items

which are usually preferred by the well-to-do. A more important advantage of ad valorem taxes is that they respond automatically to price increases. Although more complicated than specific taxes, ad valorem taxes are within the competence of moderately effective administrative organizations. Certainly, ad valorem excises and customs duties are much simpler than any net income tax or expenditure tax. In countries imposing exchange controls, information on the value of imports is available to the exchange authorities and can be exploited by customs officials.

It does not seem feasible to impose excises on many kinds of personal services or foreign travel. Omission of these items limits the possible progressivity of indirect taxation. Perhaps contemporary experts should consider the practicability of supplementing the excises with direct taxes on a few services and other items of luxury consumption, similar to levies formerly imposed in Europe and to a lesser extent in the United States. In the eighteenth and nineteenth centuries, Great Britain, for example, levied direct taxes on carriages, men-servants, dogs, armorial ensigns, plate, horses, guns, and other indicia of high social status or luxurious consumption. Such taxes were the basis of Pitt's "triple assessment" which was the immediate ancestor of the modern income tax.³¹ Dwellings appear to offer possibilities as a base for discriminating taxation of consumption.

CONCLUSION

Governments that wish to foster private saving may consider it advisable to

concentrate taxes on consumption and to tax saving lightly. Economists can agree that this policy is likely to work in the desired direction, but, in the present state of knowledge, they have little basis for advising the authorities regarding the extent of the results to be expected.

As a means of taxing consumption in the less developed countries, excises and customs duties seem more practical than an income tax with saving exempt or an expenditure tax. Although the modified income tax and the expenditure tax are attractive in certain respects, their successful use would depend on the solution of serious problems of tax design and the existence of high standards of administration and compliance. These taxes are far more complex than an ordinary income tax, a measure which has had only limited success in most underdeveloped countries. At the present time ingenuity and energy can be more fruitfully employed in the improvement of indirect taxes and other conventional sources of revenue than in the introduction of an expenditure tax or a broad exemption for saving in the income tax.

The promotion of private saving is a proper objective of tax policy in underdeveloped countries but should be seen in perspective. Private saving is only part of total saving, and increased saving alone will not assure economic progress. Taxation is only one of the factors that determine the rate of private saving, and its relative importance is uncertain. Taxes also affect the economy through their influence on incentives to work and invest, industrial structure, and relative prices. Noneconomic considerations, moreover, are important for the social acceptability of a tax system.

³¹ C. F. Bastable, *Public Finance*, 3rd ed. (London: Macmillan, 1903), pp. 497-501; Edwin R. A. Seligman, *The Income Tax*, 2d ed. (New York: Macmillan, 1921), pp. 59-72.

PERCENTAGE DEPLETION AND THE ALLOCATION OF RESOURCES: THE CASE OF OIL AND GAS

STEPHEN L. McDONALD *

THE basic criticism generally levied by academic economists against percentage depletion as it applies to mineral industries in the United States is that it is non-neutral with respect to the allocation of resources, leading to an excessive application of resources to the finding and production of affected minerals.¹ Perhaps the most explicit, detailed and unequivocal criticism of this sort is that of Arnold C. Harberger.² Asserting

* The author is Professor of Economics at the University of Texas and gratefully acknowledges his indebtedness to academic colleagues and to friends in the petroleum industry who have read and commented on earlier drafts of this paper, including W. Jack Crawford, Richard J. Gonzalez, Robert G. James, Minor S. Jameson, William D. Ross, John M. Ryan, Radford L. Schantz and Bernard Sliger. No one of them, it should be said, is necessarily in full agreement with the final result. The author alone is responsible for any errors of fact or logic that may remain.

¹ See, for examples of such criticism, Arnold C. Harberger, "The Taxation of Mineral Industries," *Federal Tax Policy for Economic Growth and Stability*, compendium of papers presented to the Joint Committee on the Economic Report, 84th Congress, 1st Session, Washington, November, 1955; and Peter O. Steiner, "Percentage Depletion and Resource Allocation," John A. Menge, "The Role of Taxation in Providing for Depletion of Mineral Reserves," and Horace M. Gray, "Tax Reform and the Depletion Allowance," all in *Tax Revision Compendium*, compendium of papers presented to the Committee on Ways and Means, U. S. House of Representatives, Volume 2, Washington, November, 1959.

² *Op. cit.* Steiner (*op. cit.*) follows Harberger's method of analysis, adding certain corrections and modifying refinements. While he agrees with Harberger that percentage depletion involves non-neutral taxation, his approach is less to criticize than to pose the cost vs. benefit issue.

that tax neutrality with respect to resource allocation requires equal taxation of the return to capital in all uses and industries,³ Harberger makes his point as follows: ⁴ Suppose two capital assets, one an industrial machine and the other a mineral deposit to which percentage depletion applies. Assume that these two assets are equal in cost and that the streams of income expected from them, before income tax but net of other relevant costs,⁵ are equal in present value. With no income tax or with equal effective rates of income tax (implying like schedules of depreciation), the two assets would be equally attractive to rational investors. But with an income tax and percentage depletion as it applies to minerals in the United States, the effective income tax rate would be lower for the owner of the mineral deposit; because in computing taxable in-

³ Harberger, *op. cit.*, p. 439. Harberger's discussion refers to the corporate income tax only. In a later paper, not concerned directly with percentage depletion, he makes it clear that to be neutral the corporate income tax must fall upon income from debt as well as equity capital. "The Corporation Income Tax: An Empirical Appraisal," *Tax Revision Compendium*, Volume 1, p. 232.

⁴ "The Taxation of Mineral Industries," pp. 447-449.

⁵ The "relevant costs" are those involving cash outflow over the life of the assets. Depreciation and depletion enter the computation of present value only to determine income tax liability. Risk and opportunity cost of capital are embraced in the rate of discount.

come the owner of the machine would be allowed to deduct as depreciation the cost of the machine only, while the owner of the mineral deposit would be allowed to deduct a percentage of gross income in addition to the costs of finding and developing the deposit.⁶ Consequently, the mineral deposit would have a higher present value than the machine and would be a more attractive investment. It is inferred, then, that the effect of percentage depletion is to alter the allocation of resources in favor of finding and developing mineral deposits. Compared with a situation of equal taxation of return to capital in all industries, percentage depletion leads to relatively greater output and relatively lower prices of mineral products, assuming, reasonably enough, that exploration and/or recovery effort in the mineral industries is positively responsive to prospective returns.⁷

It is the purpose of this paper to show that, in general, equal effective income tax rates are not necessarily neutral with respect to the allocation of resources among industries; and that, in particular, percentage depletion at the rate currently applying to income from oil and gas production probably does not lead to a relatively excessive application of resources to the search for and production of these minerals.⁸

The argument relies heavily upon an adaptation of the line of reasoning employed by Carl S. Shoup⁹ in an ap-

proach to the problem of incidence of the corporate income tax. According to this line of reasoning, the imposition or increase in the rate of a corporate income tax leads managements to make price adjustments, if necessary in connection with reduced rates of capacity expansion, with a view to restoring what they consider normal or necessary rates of return after tax. Full realization of the objective necessitates increases in before-tax margins by amounts that vary directly with normal rates of return and indirectly with normal rates of capital turnover.¹⁰ For Shoup, the implication is that the ease with which the corporate income tax may be shifted forward varies substantially among industries, particularly in the short run. For us, the argument has additional implications. If differences among industries in normal rates of return and normal rates of capital turnover may be taken as given by differences in risk and technical requirements, it follows that restoration of normal rates of return after imposition of a flatrate corporate income tax involves changes in relative prices and shifts in the allocation of resources

Capital Structure and Turnover Rates," *National Tax Journal*, Vol. I, March, 1948, reprinted in *Readings in the Economics of Taxation*, American Economic Association, Vol. IX, Homewood, Richard D. Irwin, 1959. In a similar vein, see also Morris Beck, "Ability to Shift the Corporate Income Tax: Seven Industrial Groups," *National Tax Journal*, Vol. III, September, 1950; and Carl S. Shoup, "Some Problems in the Incidence of the Corporation Income Tax," *American Economic Review*, L, Proceedings Issue, May, 1960.

¹⁰ Shoup emphasizes inter-industry differences in capital turnover and not differences in rate of return. However, his formulation of the problem makes the latter clearly relevant. J. Fred Weston has pointed out the relevance of differential rates of return in connection with differential riskiness. "Incidence and Effects of the Corporate Income Tax," *National Tax Journal*, Vol. II, December, 1949, pp. 313-314.

⁶ Actually, as explained below, the mineral producer taking percentage depletion forfeits the right to make separate deductions for certain capital outlays.

⁷ Harberger, "The Taxation of Mineral Industries," p. 444.

⁸ Like Harberger, we consider the effects of the corporate income tax only.

⁹ "Incidence of the Corporation Income Tax:

among industries.¹¹ Under these circumstances, only a system of tax rates appropriately discriminating among industries on the basis of respective normal ratios of rate of return to rate of capital turnover would be neutral with respect to the allocation of resources among industries. Harberger's assertion that neutrality requires equal tax rates and his conclusion that percentage depletion leads to a misallocation of resources apparently rest upon his implicit assumption of equal normal rates of return and equal normal capital turnover rates in all industries.¹²

So as to make clear the basis for certain steps in the analysis to follow, we begin with an explanation of how percentage depletion affects an oil and/or gas producer's income tax liability and net income. There follows a detailed statement of our analytical framework and an evaluation of the probable resource allocation effects of percentage depletion as between the petroleum industry and manufacturing.

*Percentage Depletion Applied to Income from Oil and Gas Production*¹³

In computing taxable income, producers of oil and gas in the United States are permitted to deduct from gross receipts, in addition to other costs, amounts representing capital consumption. The term "depletion" is custom-

arily employed to identify capital consumption taking the form of reduction in value of natural deposits in consequence of extraction and sale. The depletion deduction must be computed separately for each individual producing property, or leasehold, and for each property the producer applies either cost depletion or percentage depletion, whichever allows him the larger deduction in any tax year. If he applies cost depletion, his deduction from gross income is a pro rata (unit-of-production) fraction of the capitalized leasehold costs of the producing property in question. The capitalized leasehold costs include the original costs of acquiring the lease and exploration expenses (other than dry hole costs, which are deductible as current expense) attributable to the property. The producer may capitalize intangible costs incident to drilling productive wells or treat them as current expense, at his option. If he capitalizes them, for obvious reasons an unusual procedure, they are included in capitalized leasehold costs. Tangible development costs are separately depreciable and so are not included in capitalized leasehold costs for purposes of cost depletion. In short, if the producer uses cost depletion, presumably because the deductions allowed exceed those under percentage depletion, he may deduct from the gross receipts of a particular property only the costs actually incurred in producing those gross receipts.

¹¹ This is true in the case of backward as well as forward shifting, unless wholly unrealistic assumptions are made concerning the elasticity of factor supplies to individual industries.

¹² In their computations leading to a quantitative statement of the effects of percentage depletion (and the expensing of certain capital outlays), Harberger and Steiner employ the same rate of discount for each industry involved. Their formulation has no place for capital turnover. Harberger, *op. cit.*, p. 449; Steiner, *op. cit.*, p. 961.

¹³ Except as otherwise noted, the following section is based upon *The Internal Revenue Code of 1954*, Sections 611-616; *The Federal Revenue System: Facts and Problems*, Joint Economic Committee, 86th Congress, 1st Session, Washington, 1959, pp. 83-86; *Oil and Gas Federal Income Tax Manual*, Sections I and II, Arthur Anderson & Co. (no address), 1953; and conversations with tax accountants in the petroleum industry.

Use of the percentage depletion alternative permits the producer to deduct for depletion as much as 27½ per cent of the gross income of a given property, after payment of royalty to the land owner. However, the deduction may not exceed 50 per cent of the net income attributable to the given property, determined by deducting from the property's gross income all the allowable expenses attributable to it. The percentage depletion deduction is, then, 27½ per cent of the property's gross income after royalties or 50 per cent of its net income, whichever is smaller. The producer using the percentage depletion alternative in any year forfeits the right to make separate deduction for that year's share of capitalized leasehold costs, since percentage depletion is in lieu of cost depletion, but the right to other deductions (dry hole costs, uncapitalized intangible development costs, etc.) is unaffected by the choice. Accordingly, percentage depletion when chosen usually allows total deductions from gross income in excess of costs actually incurred. The net advantage, if any, to the producer is the excess of percentage depletion over "cost basis" depletion based on capitalized leasehold costs.

The computation of percentage depletion and its effects upon an oil and gas producer's net income for a given year may be made clearer with an illustration. Assume the firm has two producing properties as in Table I. Although the two properties have the same gross income, Property B is allowed a depletion deduction of only \$20,000 due to the 50-per-cent-of-net limitation, while Property A is allowed \$27,500, the full 27½ per cent of gross income. The firm's income tax liability is based on

the consolidated net income derived from the two properties after the additional deduction of business costs not attributable to individual properties. Computation of income tax liability is illustrated in Table II. It will be noted that the total depletion deduction is \$47,500, which is about 23.8 per cent of gross income rather than 27.5 per cent. As will be shown below,¹⁴ the smaller percentage deduction, resulting from the 50-per-cent-of-net limitation, is probably near the rate of percentage

TABLE I

	Properties	
	A	B
Gross income after royalty	\$100,000	\$100,000
- Costs attributable to property *	40,000	60,000
Net property income before depletion	60,000	40,000
(27½% of gross)	(27,500)	(27,500)
(50% of net)	(30,000)	(20,000)
- Allowable depletion	27,500	20,000
Net property income after depletion	32,500	20,000

* These costs include production expenses (including production taxes and an apportionment of overhead), ad valorem taxes, depreciation of tangible well investment, cost of dry holes drilled on the lease and intangible expenses of drilling productive wells. They exclude lease acquisition and capitalized exploration costs attributable to the property.

depletion typically realized by the larger, more successful producing firms.

Now suppose the firm in the illustration might have made deductions based on capitalized lease acquisition and capitalized exploration expenses attributable to producing properties (which, it will be recalled, cannot be separately deducted from gross income under the percentage depletion option) amounting to \$7,500. The allowable depletion deduction would then exceed the cost basis depletion by \$40,000 (\$47,500-\$7,500),

¹⁴ P. 328.

or 20 per cent of gross income. This is to say that the total deductions from gross income for tax purposes exceed by \$40,000 the total costs incurred by the firm. Accordingly, on account of the excess of allowable depletion over cost basis alone, the firm's financial net income after taxes, as it would be reported on the basis of conventional accounting methods to management and stockholders, would be \$59,900 rather than \$19,900 as indicated on the tax return.

TABLE II

	Receipts and Expenses
Gross income after royalty	\$200,000
- Costs attributable to individual properties	100,000
Net property income before depletion	100,000
- Allowable depletion deduction	47,500
Net property income after depletion	52,500
- All other costs of doing business*	22,500
Net taxable income	30,000
- Federal income tax**	10,100
Net income after tax per tax return	19,900

* These would include cost of dry holes not attributable to producing properties, other exploration expense, cost of surrendered leases, lease rentals, interest paid, taxes other than production, ad valorem and income taxes, and overhead and miscellaneous expense attributable to nonproducing properties.

** Thirty per cent of the first \$25,000 plus 52 per cent of the amount over \$25,000.

It is significant for our later purposes to note that most oil and gas producing firms would have to make another adjustment to tax return net income in order to reconcile it with their regular statement of net income after taxes. Most such firms capitalize and amortize intangible development costs for their own accounting purposes while expensing them currently for tax purposes.¹⁵ If these firms' development

outlays have been growing over the past several years, current tax deductions exceed current book charges for amortization of intangible expenses, the excess varying directly with the rate of growth of outlays and the depreciation period. Tax return net income after taxes understates book net income to the extent of the excess of current deductions over current amortization charges.¹⁶

Unfortunately, we have only fragmentary information about the industry average effective percentage depletion rate, the average excess of allowable over cost basis depletion, and the typical differences between current taxable income and current book net income due to differences in accounting for book and tax purposes. Published income tax returns data do not provide the classification of receipts and expenses necessary to permit the computation of averages for a period of years. In 1950, in connection with proposals to change depletion allowances, the United States Treasury Department studied samples of corporate income tax returns, accounting for about 80 per cent of total corporate depletion deductions in the oil and gas industry, for the years 1946 and 1947.¹⁷ The samples represented about 4 per cent of total returns from the oil and gas industry in those years. Since they accounted for such a

estimates that about three-fourths of the companies, accounting for about the same fraction of total production, follow this accounting procedure.

¹⁶ In purely economic terms, the expensing of dry hole costs and other unsuccessful exploration outlays also leads to understatement of income in a growing industry. However, in this case internal accounting practice agrees with tax treatment.

¹⁷ Testimony of United States Treasury Department, *Hearings before Committee on Ways and Means*, U. S. House of Representatives, 81st Congress, 2nd Session, February 3, 1950, pp. 50-53.

¹⁵ Horace R. Brock, *Accounting for Leasehold, Exploration, and Development Costs in the American Petroleum Industry*, unpublished doctoral dissertation, The University of Texas, 1954, p. 309. Brock

large fraction of total depletion deductions in the industry, they are presumed to be representative of the larger firms, and probably those with higher than average effective depletion rates.¹⁸ In 1946, the sample firms had an average allowable depletion deduction of 24.3 per cent of gross income from production, 22.1 percentage points being excess over cost basis; for 1947, the percentages were, respectively, 25.1 and 23.6.¹⁹ Examination of income data for the industry in these two years reveals that profits were unusually high in 1947, that year being one of rapidly rising crude oil prices, a situation obviously favorable to high effective depletion rates. Rates of return in the industry in 1946, on the other hand, were approximately equal to the post-war average. We therefore take the figures for 1946 as the more typical for the firms in the sample. Considering the likely bias in the sample, the industry averages probably are well below the sample averages. It seems entirely reasonable to suppose the industry figures to be no more than 22 per cent allowable depletion and 20 per cent excess over cost basis, leaving out of account firms with net losses. If the latter were included, the percentages would undoubtedly be lower, but we have no basis for a reasonable estimate.

The Treasury study makes no attempt to estimate the typical excess of capital outlays expensed over what would have been depreciation charges if such outlays were capitalized. How-

ever, the dollar amounts of expensed capital outlays in the samples are provided. For 1946, they came to \$542 million, of which \$381 million were intangible development costs.²⁰ We can make a very crude estimate of the typical difference between tax-return deductions and depreciation charges as follows: Assume ten-year, straight-line depreciation,²¹ and assume that expensable real capital outlays increase at an average compound rate of 2.5 per cent per year.²² Under these assumptions, depreciation charges would be roughly 90 per cent of outlays in 1946, or \$488 million. The excess of expensable outlays is about 2.9 per cent of gross income from production in the sample. For intangible development costs only, the excess is about 2.1 per cent. Again, the figures may be too high due to bias in the sample. In any case, it seems reasonable to say that the effect of capital

²⁰ *Ibid.*, p. 55.

²¹ Ten years is probably too short an average life for an oil or gas well. However, under unit-of-production depreciation half the total depreciation might well be taken in the first five years. The device of assuming straightline depreciation over ten years is adopted to simplify computation without substantially distorting results.

²² Well completions may be used as an index of real capital outlays in oil and gas production. In the periods 1927-1937 and 1937-1957, well completions increased at compound annual rates of 2.6 per cent and 2.5 per cent respectively. The rate of growth in the postwar period has been much higher, of course (about 5 per cent per year) but the difference appears to have been due to the abnormally low level of completions during World War II. (American Petroleum Institute, *Petroleum Facts and Figures*, 1959, p. 22.) As for the use of real rather than money capital outlays, unless a certain rate of inflation may be taken as typical it seems illogical to estimate typical benefits on the basis of inflating values during some specific period. It should be emphasized that a decline in drilling would be associated with smaller current deductions for capital expensing than would be the case with capitalization and amortization.

¹⁸ The Treasury Department explicitly disclaimed representativeness for the sample. *Ibid.*, p. 51. Although there is no specific explanation, the context suggests that the sample is derived from firms with net income.

¹⁹ *Ibid.*, p. 57.

expensing roughly offsets capitalized costs forfeited under the percentage depletion option. Accordingly, on the plausible assumption of a typical rate of percentage depletion over cost basis of 20 per cent of gross income, 22 per cent is a reasonable estimate of the typical excess of tax over book deductions for the profitable firms in the oil and gas industry. At least tentatively, we feel justified in using such a figure as typical in evaluating the allocative effects of such deductions.

The Analytical Framework

In this section we develop the proposition that, given inter-industrial differences in normal rates of return on invested capital and in rates of capital turnover, a flat-rate corporate income tax is generally non-neutral with respect to the allocation of resources. It is shown that a special artificial deduction based on gross receipts, such as the percentage depletion deduction, is one device for offsetting non-neutrality, a device yielding rather stable results under different rates of taxation; and a formula is derived for computing the size of special deduction required for tax neutrality.

We make two primary assumptions: (1) that the typical rate of return on invested capital in each industry reflects real costs, principally risk, which must in the long run be covered by output prices; and (2) that the typical rate of capital turnover in each industry reflects relatively rigid technical and institutional factors, so that it tends to be constant in the long run. In each case, the "long run" is a period of time long enough to permit changes in the stock of fixed capital but too short to allow significant technical and institutional

innovations. It is secondarily assumed, then, that the corporate income tax is shifted in the long run in the sense that, following imposition or increase of the tax, typical rates of return at typical rates of capital turnover are restored in the long run.²³ For simplicity of exposition, long-run supply in each industry is assumed to be perfectly elastic with respect to money returns, and tax shifting is assumed to be wholly in the forward direction, product prices rising sufficiently to absorb the additional money costs.

With the statement of these assumptions, the effect of a flat-rate corporate income tax upon resource allocation can best be explained by means of a simple illustration. Suppose two industries, A and B. Assume that the normal rate

²³ In the postwar period there has developed a substantial body of literature supporting the proposition that, because a minimum return on capital is a long-run cost, the corporate income tax tends to be shifted in the long run. See B. U. Ratchford and P. B. Han, "The Burden of the Corporate Income Tax," *National Tax Journal*, Vol. X, December, 1957, for a review of the recent literature on the subject. Two articles deserve especial note. Eugene M. Lerner and Eldon S. Hendriksen ("Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927 to 1952," *National Tax Journal*, Vol. IX, September, 1956) give rather convincing empirical evidence of shifting by showing the long-run constancy of rate of return on investment despite quadrupled tax rates. Diran Bodenhorn ("The Shifting of the Corporation Income Tax," *Quarterly Journal of Economics*, LXX, November, 1956) shows that restoration of rate of return, hence "long-run" shifting, can be accomplished in a rather short period of time in a growing economy. Contributions since the Ratchford and Han article include: Charles E. Marberry, "On the Burden of the Corporate-Income Tax," *National Tax Journal*, Vol. XI, December, 1958; Don M. Soule, "Shifting of the Corporate Income Tax; A Dynamic Analysis," *The Journal of Finance*, XIV, September, 1959; and Eugene R. Schlesinger, "Corporate-Income Tax Shifting and Fiscal Policy," *National Tax Journal*, Vol. XIII, March, 1960. See also Richard A. Musgrave, *The Theory of Public Finance*, New York, McGraw-Hill, 1959, pp. 276-287.

of return is 10 per cent in *A* and 20 per cent in *B*; and that normal capital turnover is two times per year in *A* and one time per year in *B*. (All capital is assumed to be equity capital.) We may set up a representation of their relative cost-price situation per unit of product in the absence of a corporate income tax as in Table III. So as to make changes in relative prices and the implicit reallocation of resources resulting from the tax more readily apparent, we assume unit prices to be equal in this initial situation.

Now suppose a 50 per cent income tax is imposed upon both industries and

price changes shown would, of course, depend upon relative income elasticities of demand and the elasticity of substitution of products of *A* for products of *B*. Under plausible assumptions, there would be a reallocation of resources at the expense of *B*, although it is possible to imagine offsetting income and substitution effects.²⁵ Similarly, it is possible to imagine industry supply functions which in combination with income and substitution elasticities would leave resource allocation unaffected. Yet the general proposition stands that, given inter-industrial differences in ratios of normal rate of return to normal capital

TABLE III

	Unit Prices, Costs and Investments	
	A	B
Price	\$1.00	\$1.00
- Explicit costs .....	.95	.80
Net income .....	.05	.20
Investment .....	.50	1.00
Rate of return	10%	20%

a sufficiently long period of time elapses for proportional adjustment of capacity and output in each industry. The new price-cost relationship after adjustment to the tax becomes as shown in Table IV.²⁴ The price of *B*'s output has risen relatively, the reason obviously being that the effect of the income tax on prices is a function of the ratio of normal rate of return to normal capital turnover. The reallocative adjustments associated with the absolute and relative

TABLE IV

	Unit Prices, Costs and Investments	
	A	B
Price	\$1.05	\$1.20
- Explicit costs .....	.95	.80
Net income before tax ....	.10	.40
- Income tax @ 50% .....	.05	.20
Net income after tax .....	.05	.20
Investment .....	.50	1.00
Rate of return	10%	20%

turnover, a flat-rate corporate income tax is non-neutral with respect to resource allocation. Neutrality results not from equal effective rates of income taxation, but from equal amounts of tax paid per dollar of product. The higher the relative ratio of normal rate of return to normal capital turnover in

²⁴ Nominally, capital turnover has risen in both industries in consequence of the tax. However, it is reasonable to assume that the additional flow of funds through the industries on account of the tax will require no more investment per unit of product. The "normal" capital turnover, the reciprocal of the investment per dollar of product in the absence of tax, remains unchanged.

²⁵ Assuming full employment initially, there is implied in the adjustment to the assumed income tax a reduction in *real disposable* income, unless government returns the proceeds of the tax to businesses and households as transfer payments, but real national income is unchanged. Depending upon what government does with the tax proceeds, businesses and households in the aggregate might consider their incomes increased, decreased or unchanged. Except to note its relevance, we ignore the highly uncertain income effect and concentrate on the substitution effect in discussing the non-neutrality of the corporate income tax.

a given industry, the lower is the effective tax rate required for allocative neutrality.

In the illustration above, neutrality with regard to substitution effects could be preserved by allowing *B* a special deduction from gross income in excess of its explicit costs incurred. The appropriate deduction in this case would be \$.15 per unit of product or approximately 14.3 per cent of gross income, as shown in Table V.

TABLE V

	Unit Prices, Costs and Investments	
	A	B
Price	\$1.05	\$1.05
- Explicit costs .....	.95	.80
- Special deduction .....		.15
Net taxable income .....	.10	.10
- Income tax @ 50% .....	.05	.05
Tax return net income ....	.05	.05
+ Add back special deduction .....		.15
Net income after tax .....	.05	.20
Investment .....	.50	1.00
Rate of return	10%	20%

We can generalize the principle illustrated above by expressing it in algebraic form. Referring to Table V, the column headed "A", which shows the effect of a 50 per cent income tax upon the price of the product of Industry A, it will be noted, first, that the price of A's product is increased over the pre-tax base of \$1.00 by the amount of income tax paid per unit of output. This amount expressed as a percentage of the base price, therefore, is identical with the percentage increase in price caused by the income tax. Second, it will be noted that the price increase is just enough to leave an after-tax net income of \$.05 per unit, which as a fraction of the base price is identical with the assumed ratio of normal rate of return to

normal rate of capital turnover. Beginning with the latter point, we can write:

$$r/v = n^{26}$$

where r = normal rate of return as decimal fraction,

v = ratio of base price (pre-tax price) to investment, or normal capital turnover rate,

n = ratio of net income after tax to base price.

To illustrate, substituting values from the illustration:

For Industry A: $.10/2.00 = .05$

For Industry B: $.20/1.00 = .20$

Now the tax paid per unit of output expressed as a percentage of the base price, which is identical with the percentage increase in price caused by the tax, is related to n as follows:

$$b - tb = n$$

where b = before tax net income as per cent of base price,
 t = nominal tax rate

Simplifying, $b(1 - t) = n$

$$\text{or, } b = \frac{n}{1 - t}$$

Multiplying both sides by t ,

$$tb = \frac{tn}{1 - t}$$

But as previously shown,

$$n = r/v$$

$$\text{and } tb = p$$

where p = per cent increase in base price, expressed as decimal fraction, due to income tax.

²⁶ It will be noted that the ratio r/v is the equivalent of the rate of return on sales in the absence of income tax. An expression for the latter might have been employed in the equations derived below, resulting in some simplification. However, the expression r/v is retained to emphasize the two variables underlying the rate of return on sales.

$$\text{Therefore, } p = \frac{(r/v) t}{1 - t}.$$

Again illustrating by substituting values from the illustration:

$$\text{For Industry A, } p = \frac{(.10/2.00) .50}{1 - .50} = .05, \text{ or } 5 \text{ per cent.}$$

$$\text{For Industry B, } p = \frac{(.20/1.00) .50}{1 - .50} = .20, \text{ or } 20 \text{ per cent,}$$

without special deduction; or

$$\frac{(.20/1.00) .20}{1 - .20} = .05, \text{ or } 5 \text{ per cent,}$$

with special deduction, the effective income tax rate being in the latter case 20 per cent.

We next derive the formula for the size of special deduction, expressed as a percentage of gross income, required for Industry B just to match Industry A's price increase at any given tax rate. For the price increases to be equal, the taxes paid per dollar of product must be equal, and, therefore, the net income after taxes *per tax return* must be equal. In other words, n_a must equal n_b ,

where n_a = ratio of A's net income after taxes to base price,
 n_b = ratio of B's net income after taxes *per tax return* to base price.

Now, $n_a = (r/v)_a$ and $n_b = (r/v)_b - d$

where d = ratio of special deduction to base price.

Therefore, for $n_a = n_b$, $(r/v)_a = (r/v)_b - d$

or, $d = (r/v)_b - (r/v)_a$.

Expressing the special deduction as a ratio to price after adjustment to tax and giving it the designation e , we have:

$$e = \frac{(r/v)_b - (r/v)_a}{1 + p}$$

$$\text{where } p = \frac{(r/v)_a t}{1 - t}.$$

To illustrate the use of the formula

for e , we may now compute the required special deduction for Industry B, given the conditions of Table V above.

$$e = \frac{(.20/1.00) - (.10/2.00)}{1 + (.10/2.00) .50} = \frac{.10}{1.05} = .143 \text{ or } 14.3 \text{ per cent,}$$

$$e = \frac{.20 - .05}{1.05} = .143 \text{ or } 14.3 \text{ per cent,}$$

as previously stated.

It can be seen from the form of the equation that e is fairly stable with respect to changes in nominal tax rates, particularly up to rates of about 50 per cent. Thus, in our illustration, for tax rates ranging from 20 per cent to 50 per cent, e ranges between 14.8 per cent and 14.3 per cent. For tax rates between 50 per cent and 80 per cent, e ranges from 14.3 per cent to 12.5 per cent.

Percentage Depletion and Tax Neutrality in Oil and Gas

Using the above formula for e , it is possible to compute the special deduction which would give neutral tax treatment to any particular industry, given the ratio of normal rate of return to normal capital turnover for the industry in question and for some other industry taken as the standard, at any nominal tax rate. We now proceed to make such computations for the oil and gas producing industry, taking manufacturing as the standard and using typical rates of return and typical rates of capital turnover estimated from Internal Revenue Service data for corporations with net income²⁷ as found in *Statistics of*

²⁷ The formula for e developed above implicitly assumes representative firms earning net income, after any special deductions, to which a flat-rate income tax applies. The ratios for use in the formula for e should accordingly be derived from the returns reporting net income. In addition, it is presumed

(See next page)

*Income*²⁸ and the *Source Book of Statistics of Income*.^{29,30}

The Internal Revenue Service data are classified by major industrial group, the classifications being assigned on the basis of the largest single source of receipts. Consequently, data reflecting oil and gas production are found in at least two major industrial classifications. The first is "Crude Petroleum and Natural Gas," found in the general "Mining and Quarrying" category. The "Crude Petroleum and Natural Gas" classification is further subdivided in the *Source Book* into "Oil and Gas Field Contract Services" and "Crude Petroleum, Nat-

ural Gas and Natural Gasoline." The latter subdivision, hereinafter referred to as "Oil and Gas Production," most nearly approximates the purely extractive function to which percentage depletion applies. Consequently, it is the source of data employed in deriving the rate of return and rate of capital turnover to be used in the formula for e as appropriate to the production of oil and gas. It should be remembered, however, that other economic functions, especially refining, are in some degree reflected in the data for "Oil and Gas Production."

The other major classification in which data reflecting oil and gas production are found is that of "Petroleum and Coal Products," under the broad category of "Manufacturing." Even though most of the nation's oil and gas output is accounted for by firms in this group, which includes nearly all of the major integrated concerns, the data reported are not suitable for our purposes since they predominantly reflect functions other than extraction. Similarly, the presence here of such a large volume of oil and gas production, with the associated depletion deductions, renders the classification inappropriate for inclusion in the category "Manufacturing" to be used as the standard industry in computing e . Before computing the rate of return and rate of capital turnover for "Manufacturing," therefore, the data for "Petroleum and Coal Products" are subtracted from that category.

So as to derive rate of return and rate of capital turnover estimates that are reasonably typical under modern circumstances, the relevant data are averaged for the seven years 1949-1951 and 1953-1956 inclusive (*Source Book*

(see Note 18 above) that the only available indication of the average effective percentage depletion rate, with which our results must be compared, reflects the experience of firms reporting net income. In any case, ratios based on total returns data are subject to possible serious distortions resulting from the fact that in the total returns data reported losses are deducted from reported net income, while the income tax liability remains the same as for the net income returns alone. The resulting apparent effective income tax rates are clearly inappropriate for adjusting income to capital for differences in debt to equity ratios, to say nothing of their overstatement of actual income tax liability after allowance for loss carry-forwards or carry-backs, which is not available in the data.

²⁸ U. S. Treasury Department, Internal Revenue Service, *Statistics of Income, Part 2, Corporation Income Tax Returns*.

²⁹ Available in the Washington offices of the Internal Revenue Service. The author is grateful to Mr. Radford L. Schantz of Foster Associates, Washington, D. C., for securing and transmitting photostatic copies of the relevant data.

³⁰ It is recognized, of course, that the Internal Revenue Service data, reflecting tax-return accounting procedures, are not ideal for the present purposes. They do have the virtue, however, of being derived from a more comprehensive and representative sample than is otherwise feasibly available to the author. It is believed that the adjustments made render these data more useful for the present purposes than any that might be derived from published corporate reports, which, due to differences in accounting methodology, are themselves difficult to interpret and combine.

data for 1952 being unavailable) and the rates computed from the means. The period embraces two recession years, about two years of the Korean War, and about three years of "normal" prosperous conditions. It excludes the immediate postwar years in which profits were unusually high in all industries, as well as the year 1957, in which oil industry profits were somewhat raised in connection with the Suez crisis. We take the resulting mean rates of return and mean rates of capital turnover for the seven-year period as "normal" for our purposes.

Computations are made on the basis of two different definitions of investment and income. In the first case, investment is defined as stockholders' equity, and income is defined as book net income after taxes available for dividends and/or retention. We call this the "equity case." In the second case, which we call the "total capital case," investment is defined as the sum of stockholders' equity and borrowed funds, and income is defined as book net income after taxes available for dividends and/or retention *plus* interest paid net of imputed taxes at the effective corporate rate on taxable income. In other words, in the latter case all capital is treated as equity capital, and all income to contributors of capital is treated as if subjected to the corporate income tax. The procedure is designed to correct for variations in tax effects resulting from the difference in debt-equity ratios.

Since the net income data in the Internal Revenue Service compilations are tax return data, they understate book net income as recorded under conventional accounting practices by the amount of special deductions for tax

purposes. Accordingly, to compute book net income after tax for our purposes we add back to tax return net income after tax the deduction for depletion. This procedure is based on the assumption, previously explained (p. 327 above), that the gross deduction for depletion is a reasonable measure of the typical net excess of deductions over costs arising out of both percentage depletion and expensing of capital outlays. In keeping with our analytical model, which assumes perfectly elastic long-run supply functions and entirely forward shifting of the corporate income tax, we take gross receipts as reported to be "inflated" by the amount of the tax paid (and imputed). Accordingly, reported gross receipts are adjusted downward by the amount of income taxes in order to compute "normal" rates of capital turnover.

The data and the computed rates are shown in Table VI. Numbers in brackets and parentheses following row captions indicate the rows of data involved in each computation. It can be seen in Rows 14 through 17 that substantial differences exist between the two industries as to computed rates of return and rates of capital turnover. In the equity case (Rows 14 and 16) the computed rate of return is 24.2 per cent for "Oil and Gas Production," as compared with 12.0 per cent for "Manufacturing;" and the computed rates of capital turnover are, respectively, 0.87 and 2.30. In the total capital case (Rows 15 and 17) the computed rates of return are 20.2 per cent and 10.3 per cent for "Oil and Gas Production" and "Manufacturing," respectively, the corresponding rates of capital turnover being 0.71 and 1.91.

It is most probable that if the data

reflecting nonextractive functions, such as refining, could be removed from the total for "Oil and Gas Production," the computed rate of return would be higher and the computed rate of capital turnover would be lower. This is indicated by the fact that for "Petro-

tal the computed rate of return for "Petroleum and Coal Products" was 10.1 per cent and the computed rate of capital turnover 1.15. Thus the presence of some refining data in "Oil and Gas Production" undoubtedly lowers the rate of return and raises the rate of capi-

TABLE VI

RATE OF RETURN AND CAPITAL TURNOVER, MANUFACTURING, EXCEPT PETROLEUM AND COAL PRODUCTS, AND OIL AND GAS PRODUCTION, CORPORATIONS FILING RETURNS WITH BALANCE SHEETS AND REPORTING NET INCOME, 1949-1951, 1953-1956^a
(Quantities are seven-year averages in millions of dollars)^b

	Manufacturing Except Petroleum and Coal Products	Oil and Gas Production
1. Stockholders' equity	89,880	2,542
2. Borrowed funds	18,217	557
3. Total capital (1+2)	108,097	3,099
4. Compiled net profit less operating loss deduction	20,624	468
5. Depletion ^c	370	354
6. Income tax	10,222	207
7. Book net income after tax (4+5-6)	10,772	615
8. Interest paid	735	19
9. Imputed tax on interest paid ^d	368	8
10. Total Income to capital (7+8-9)	11,139	626
11. Total compiled receipts	216,586	2,410
12. Adjusted total receipts—A (11-6)	206,364	2,203
13. Adjusted total receipts—B [11-(6+9)]	205,996	2,195
14. Rate of return on stockholders' equity (7+1)	12.0%	24.2%
15. Rate of return on total capital (10÷3)	10.3%	20.2%
16. Turnover of stockholders' equity (12÷1)	2.30	0.87
17. Turnover of total capital (13÷3)	1.91	0.71
18. Number of returns	77,023	1,366

^a Data on "Oil and Gas Production" not available for 1952.

^b Except number of returns, reported in units.

^c Here taken as an estimate of the excess of allowable depletion over cost basis plus the excess of tax-return capital expensing over book charges. See text, pp. 327-8, for explanation.

^d The rate employed is arbitrarily taken to be the ratio of income tax (line 6) to compiled net profit less operating loss deduction (line 4).

Source: Internal Revenue Service, *Statistics of Income*, Part 2, *Corporation Income Tax Returns* and *Source Book of Statistics of Income*.

leum and Coal Products," which predominantly reflects refining even though extraction is present in large volume, the computed rate of return on equity for the period under study was 11.6 per cent and the computed rate of capital turnover was 1.36. On total capi-

tal turnover computed for that category.

Applying the above computed rates in the formula for e and assuming for simplicity an effective income tax rate of 50 per cent on the taxable income of both "Manufacturing" (the standard industry) and "Oil and Gas Pro-

duction," we get a value for e of .215 in the equity case and .219 in the total capital case. Taken literally, these results mean that an *effective* special deduction of 21.5 to 21.9 per cent of gross income for "Oil and Gas Production" would be consistent with allocative neutrality as between that industry and "Manufacturing." The computed values for e are very close to the 22 per cent which seems to be a reasonable estimate of the actual *effective* benefits of percentage depletion and current expensing of capital outlays expressed as a percentage of gross income (p. 328 above). If data were available for the purely extractive activities reflected in "Oil and Gas Production," the computed values for e would undoubtedly be higher, perhaps substantially above 22 per cent. So again literally interpreting our results, they seem to be consistent with the proposition that the present rate of percentage depletion, coupled with expensing of intangible development costs, results in reasonable neutrality in the allocation of resources as between the production of oil and gas and manufacturing.

Conclusions

The preceding analysis challenges the proposition advanced by Harberger and others that percentage depletion and related tax provisions, resulting as they do in lower effective income tax rates for the mineral industries affected, necessarily lead to a malallocation of resources. It has been demonstrated that given inter-industrial differences in nor-

mal rates of return on investment and in normal rates of capital turnover, a flat-rate corporate income tax is generally non-neutral with respect to the allocation of resources, so that differential tax treatment may in some instances be consistent with neutrality. It has further been shown that on the basis of available data and certain reasonable assumptions, the present tax provisions applying to corporate income derived from oil and gas production seem to be consistent with allocative neutrality as between that industry and manufacturing, the latter taken to be the most logical standard of comparison.

It is freely granted that the data employed in the analysis are not without their limitations, and that certain assumptions that had to be made (all of which are specified) are not above question. Moreover, the analysis relates strictly to the corporate income tax and leads to conclusions solely with respect to the allocation of resources as between oil and gas production and manufacturing. There is no necessary suggestion that tax rates generally *should* vary from industry to industry on the basis of rate of return and capital turnover characteristics. Nor has there been any consideration of questions of public policy or equity. However, on the narrow point to which the analysis is devoted—the matter of allocative neutrality—the data and logic employed here cast serious doubt upon the criticism that percentage depletion necessarily induces an uneconomical allocation of resources to the production of oil and gas.

UNIFORMITY IN GOVERNMENTAL EXPENDITURES AND RESOURCES IN A METROPOLITAN AREA: CUYAHOGA COUNTY

JESSE BURKHEAD *

THE recent upsurge of public interest in metropolitan area problems has brought significant new studies of the public finances of urban areas. Existing data have been re-analyzed with fresh approaches, as in Brazer's monograph on city expenditures.¹ The intensive studies of specific metropolitan areas have made new data available, with an accompanying stimulus to the analysis of fiscal patterns and relationships; the St. Louis, Dayton and New York Metropolitan Region studies are particularly noteworthy.² In one case the urban area fiscal problems of an entire state have come under review.³

* The author is Professor of Economics at Syracuse University. He is indebted to Seymour Sacks and William Hellmuth, formerly of the staff of the Cleveland Metropolitan Services Commission and to Jerry Miner, Department of Economics, Syracuse University for assistance in interpreting the data reprinted here. Karen Polenske and Robert Fairbanks, graduate students in the Department of Economics at Syracuse University, assisted in the statistical computations. This research was made possible by a Ford Foundation Faculty Fellowship.

¹ Harvey E. Brazer, *City Expenditures in the United States*, National Bureau of Economic Research, New York, 1959.

² See Werner Z. Hirsch, "Expenditure Implications of Metropolitan Growth," *Review of Economics and Statistics*, August 1959, pp. 232-241 (from the St. Louis study); Metropolitan Community Studies, Inc., *Metropolitan Challenge*, Dayton, 1959; Robert C. Wood, *1400 Governments*, Harvard University Press, Cambridge, 1961.

³ John A. Vieg and associates, *California Local Finance*, Stanford University Press, Stanford, 1960.

Of the metropolitan area studies thus far conducted the most intensive examination of public finances has been that undertaken by the Cleveland Metropolitan Services Commission for Cuyahoga County. Several documents have already been published and a major summary volume, authored by Sacks, Hellmuth and Egand is scheduled for publication in 1961.⁴ The Cleveland data are the most comprehensive now available or likely to become available in the immediate future for a single metropolitan area. Here is information on public expenditures and public revenues for each municipality and school district for the years 1940, 1950, and 1956 (and for some other years for selected series), both in aggregate and per capita terms. Data on assessed valuations are available to permit comparisons among governmental units and over time for single units or aggregates of units.

Moreover, the Cleveland area is particularly useful for the study of metropolitan public finances. It is large enough to be intrinsically significant—with a population of 1,580,000 in 1956. Growth rates for the 1950-60 decade are at the median of metropolitan areas for the nation as a whole with populations in excess of 1,000,000. And, in a uni-

⁴ See Cleveland Metropolitan Services Commission, *The Cleveland Metropolitan Area—A Fiscal Profile*, Cleveland, 1958; *Problems of Financial Management in Cuyahoga County*, 1959.

verse of metropolitan areas where none is typical, Cuyahoga County is at least not atypical. There is a single central city ringed with smaller satellite cities, some "balanced" in economic character, with a complex of villages predominantly residential or "bedroom," and with a few industrial enclaves. The metropolitan area does not cross state lines, which makes its fiscal structure less complicated than would otherwise be the case. It may therefore be hoped that findings from the Cleveland area are reasonably representative of conditions in a number of other metropolitan areas in the United States.⁵

I. THE CONCEPT OF HOMOGENEITY

The present investigation utilizes the Cleveland data to examine trends toward uniformity in public finances in the metropolitan area. An effort is made here to answer such questions as: Are patterns of governmental expenditures becoming more uniform in municipalities and school districts within the metropolitan area? Are taxable resources coming to be increasingly uniform in their distribution among governmental units in the metropolitan area? Are some communities able to resist the forces of urbanization and maintain a preferred position in their tax expenditure pattern? Are rich communities becoming richer and poor communities becoming poorer within the metropolitan area? Does population growth in the metropolitan area bring a greater or a lesser degree of cohesion in general fiscal problems?

⁵ The Cleveland Standard Metropolitan Area, in accordance with 1950 Census definitions, consisted of Cuyahoga and Lake Counties. In 1950 the latter contained only 5 per cent of the SMA population, of which 57 per cent were classified as urban. In that year Cuyahoga's population was 98 per cent urban.

All of these questions, and other similar ones, can be subsumed under a general concept of "homogeneity." In these terms the hypothesis to be tested is: Processes of economic development within the metropolitan area are accompanied by an increased homogeneity in patterns of government expenditures and in the distribution of taxable resources.

Put in these terms "homogeneity" has its counterparts in national and regional economic development. In the national economy the growth and change of the last three decades have brought an increased integration, that is, an increased "homogeneity." Markets are more national and less local; the distribution of income by size class is more equal; regional differences in per capita income are narrowing; regional economic structures are becoming similar with respect to the degree of industrialization. To test the hypothesis as stated above is essentially to test whether national and regional trends toward economic uniformity are matched by metropolitan area trends that produce the same kinds of results. In this sense the public finances of the metropolitan area are implicitly treated as a dependent variable—as the resultant of the forces of economic development and change with impacts on urban government programs.

No effort is made here to analyze the determinants of either expenditures or resources—the changes in population, income and wealth, degree of urbanization or social structure—that make for higher or lower public revenues and outlays. Instead, attention is directed to the outcome of the multiplicity of development forces affecting the financial conditions of urban government.

Some aspects of the homogeneity concept have been examined by demographers, sociologists and land economists, although in contexts very different than used here. Bogue has analyzed patterns of dominance and subdominance in metropolitan areas in terms of the characteristics of the market.⁶ He finds that the metropolitan market mediates a complex pattern of inter-community exchange, integrating the activities of outlying communities with the central city and with each other. Interdependence within the metropolitan area is growing, but patterns of economic differentiation among communities will persist.

In a careful study of central city and suburban land values in a number of metropolitan areas Wendt has found increased patterns of uniformity.⁷ Central business district land values do not increase as rapidly as in outlying areas. Other evidence supports the finding that CBD land values and rents decline relative to outlying areas.⁸

Sociologists have been most active in studying the presence or absence of homogeneity within urban areas. Shevky and Williams devised an index based on 1940 Census tract data for Los Angeles;⁹ Shevky and Bell later extended

and refined the index. A number of other sociologists have utilized the social area approach to analyze numerous urban phenomena.¹⁰ However, most of these analyses have been directed to the central city, not to all communities within the metropolitan area, and, of course the Census tract approach has its critics.¹¹

Some insights into trends toward or away from fiscal homogeneity, apart from other aspects of homogeneity, may contribute modestly to an understanding of the general forces of urbanization and specifically to some prediction of the future of metropolitan area government. The hard fact of governmental life in urban America is fragmentation. There is a multiplicity of governmental units, each with limited geographical reach or possessed of narrow program authority. Tax bases are divided and subdivided and urban governments have few fiscal handles with which to grasp the wealth and income within their borders. But if, in spite of governmental fragmentation, there are established trends toward fiscal uniformity, reflecting an overriding tendency toward economic integration in the area, governmental disorganization should eventually yield, in some measure and at some points. If expenditure patterns of governments in metropolitan areas are moving toward uniformity and if fiscal resources are coming to be more equally distributed there may be hope that com-

⁶ Donald J. Bogue, *The Structure of the Metropolitan Community*, Horace H. Rackham School of Graduate Studies, University of Michigan, 1949, esp. pp. 61-63.

⁷ Paul F. Wendt, "Urban Land Value Trends," *Appraisal Journal*, April 1958, pp. 245-269; "Economic Growth and Urban Land Values," *ibid.*, July 1958, pp. 427-443.

⁸ Richard U. Ratcliff, "Commentary," *Land Economics*, November 1957, pp. 360-362.

⁹ Eshref Shevky and Marilyn Williams, *The Social Areas of Los Angeles*, University of California Press, Berkeley, 1949; Eshref Shevky and Wendell Bell, *Social Area Analysis*, Stanford University Press, Stanford, 1955.

¹⁰ For a summary see Wendell Bell, "Social Areas: Typology of Urban Neighborhoods," *Community Structure and Analysis*, Martin B. Sussman, ed., Crowell, New York, 1959, pp. 61-92; Scott Greer and Ella Kube, "Urbanism and Social Structure: A Los Angeles Study," *ibid.*, pp. 93-112.

¹¹ Amos H. Hawley and Otis Dudley Duncan, "Social Area Analysis: A Critical Appraisal," *Land Economics*, November 1957, pp. 337-345.

mon problems will bring common solutions. The isolation, suspicions and antagonisms, the state of competitive anarchy that now characterizes metropolitan government may yet give way to region-wide solutions, ranging from a higher level of inter-local cooperation to the now-utopian remedies long proposed by political scientists—metropolitan-wide consolidation or federation.

II. EXPENDITURES AND RESOURCES

Cuyahoga County has 20 cities, including Cleveland, 38 incorporated villages and 4 townships. Four of the villages are omitted from this analysis because their corporate history does not extend back to 1940. These four had a 1956 population of 10,077 (Bedford Heights, Oakwood, Walton Hills, Woodmere). The four townships in the county, with a 1956 population of 6,552, are also excluded. There are three villages and one school district in the county that are properly described as industrial enclaves. In these jurisdictions per capita resources are exceptionally high and per capita expenditures exceptionally low. Nevertheless, it was decided to include these units and utilize measures of statistical relationship that are not unduly influenced by their deviant characteristics.

The statistical analysis is directed toward uniformity patterns for selected components of expenditures and for total expenditures for the years 1940, 1950 and 1956 for cities, for villages and for school districts. Four expenditure components are examined: general government, police, fire, and streets and highways. These four constitute about 60 per cent of total current operating expenses for cities and about 70 per cent for villages.¹² Total current oper-

ating expenditures is the sum of these four plus the remaining components. In accordance with Census definitions, this total excludes interest, capital outlay and the expenditures of public service enterprises.¹³ For municipalities the four components and total current operating expenditures are expressed on a per capita basis.

To examine the impact of growth on expenditure patterns the cities and villages were divided into two "growth groups." Those with population increases above the county median for the period 1940-56 were designated "rapid growth;" those with population increases less than the median as "slow growth." The RG group contains 9 cities and 18 villages, the SG group 11 cities and 16 villages. Expenditure patterns for both municipalities and school districts are also measured in relation to resources—as expenditures per \$1000 of assessed valuation.

The Cleveland data permit examination of two measures of resources: assessed valuation defined to include real property, tangible personalty and intangibles, and assessed valuation including real property and intangibles but excluding personalty. The first measure is a reasonably good approximation of taxable capacity as reflected in property ownership. The second is admittedly a hybrid, useful for comparative purposes as an indication of the behavior of a property tax base that excludes tangible personalty.

¹² The excluded components are: Other public safety, Hospitals, Public welfare, Miscellaneous commercial activity, Recreation and culture, Land use and development, Pensions, Miscellaneous and unallocable.

¹³ This also nets out payments for debt retirement, the purchase of securities, intra-governmental transfers and benefits from pension funds.

Under Ohio law public utility property is listed as real property on local tax rolls. Tangible personalty includes business inventories but excludes household goods and automobiles.¹⁴ Real and tangible personalty are assessed on a county-wide basis at about 35 per cent of market value and assessment standards are thought to be reasonably uni-

terms of income value; the estimates of market value used here were prepared by Metro staff.

For purposes of this analysis the City of Cleveland has been grouped with other cities in Cuyahoga County. In 1956 the City contained 58.6 per cent of the County's population and 56.2 per cent of the County's assessed valuations. The City thus dominates the public finance aggregates for the area but its fiscal behavior in per capita terms is not sharply different from the other 19 cities in the County. Table I shows the relevant comparisons.

TABLE I

CLEVELAND AND CUYAHOGA COUNTY CITIES,
PER CAPITA EXPENDITURES AND RESOURCES,
1940, 1950, 1956

	Cleveland	All Cities (20)
Total Current Operating Expenditures		
1940	\$ 30.80	\$ 15.90
1950	45.40	26.50
1956	59.30	40.00
School District Total Current Operating Expenditures (ADM)		
1940	117.00	122.60
1950	242.50	239.70
1956	331.60	347.00
Assessed Valuation		
1940	1379.00	1744.00
1950	1981.00	1999.00
1956	2851.00	2808.00

Source: Computed from data in Cleveland Metropolitan Services Commission, *The Cleveland Metropolitan Area—A Fiscal Profile*, Cleveland, 1958; Seymour Sacks, William F. Hellmuth, Jr., Leo M. Egand, *Financing Governments in a Metropolitan Area: The Cleveland Area Experience* (unpublished manuscript), 1959.

form for any one year in the series. However, there may be differences in assessment ratios for different classes of property that introduce unknown amounts of distortion.¹⁵ Intangibles are subject to a state-wide assessment in

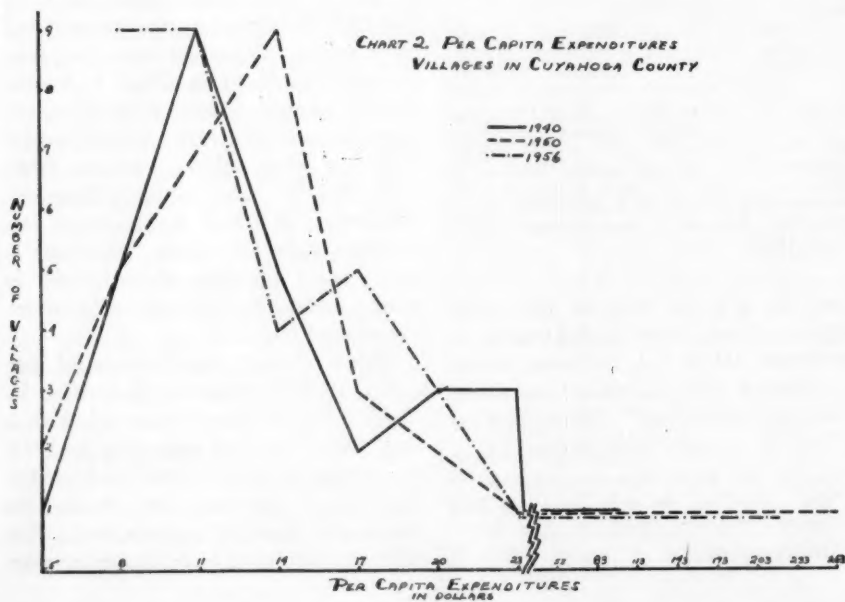
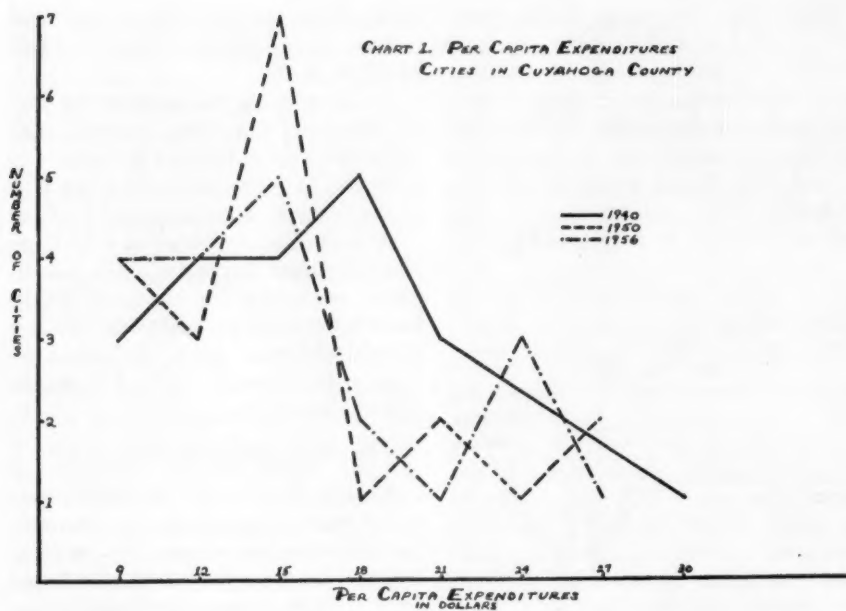
III. FREQUENCY DISTRIBUTIONS

An examination of the distributions of per capita expenditures and resources for cities and for villages in Cuyahoga County in the years 1940, 1950 and 1956 suggests some general conclusions. These distributions are shown in Charts 1-4. To facilitate visual comparisons the means of the distributions for 1950 and 1956 have been conformed to 1940 mean values. Per capita expenditures in the cities, as shown in Chart 1, show a marked central tendency in all years; there is a semblance of a normal curve. Skewness is diminished between 1940 and 1950-56. Per capita village expenditures, in Chart 2, are much less uniform than for cities. Skewness is much more pronounced and there is some tendency toward increased clustering around the mean.

The frequency distributions of per capita assessed valuations for cities, in Chart 3, are very nearly normal, with a shift toward greater normality in 1956 as compared with 1940 and 1950. Skewness is present, but much less prominent than for expenditures. For villages there is increased clustering over

¹⁴ For a description and evaluation see *Problems of Financial Management*, op. cit., pp. 83-86.

¹⁵ *Ibid.*, pp. 94-96.



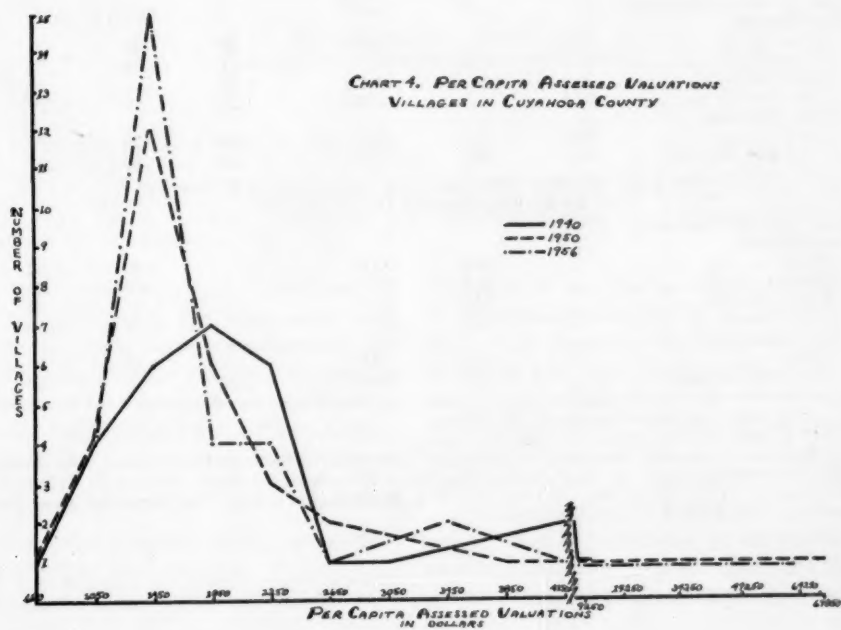
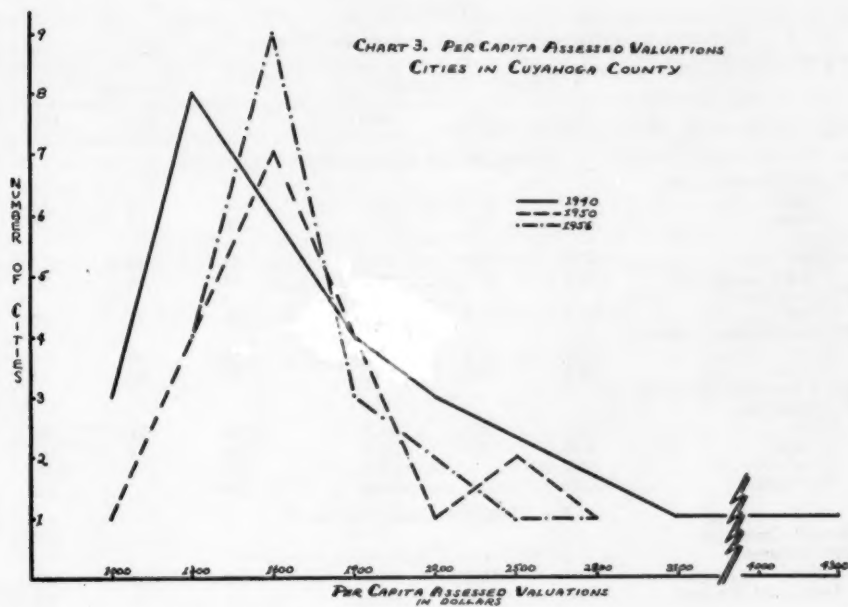


TABLE II
PATTERNS OF GOVERNMENTAL EXPENDITURES IN METROPOLITAN CLEVELAND

	Coefficient of Variation			Skewness		
	1940	1950	1956	1940	1950	1956
Per Capita, by Municipality *						
General Government:						
Cities	17.4	16.7	16.7	-.25	.56	.14
Villages	35.7	29.4	53.5	-.03	.03	.46
Police:						
Cities	33.3	23.7	19.4	.13	.44	.00
Villages	103.9	46.4	53.5	.46	.33	.57
Fire:						
Cities	54.2	46.4	22.4	.56	-.23	-.36
Streets and Highways:						
Cities	23.7	15.4	27.9	.22	.50	.26
Villages	38.2	39.9	47.8	.46	.44	.20
Total Current Operating Expenditures:						
Cities	20.5	24.0	24.7	-.08	.15	.27
Villages	41.0	25.7	32.4	.31	.14	.19
Rapid Growth	32.5	...	17.2	.00	...	-.03
Slow Growth	30.3	...	36.0	.19	...	.29
Per ADM, by School District **						
Current Operating Expenditures:						
Cities	20.2	11.7	15.6	.04	.37	-.03
Local and Exempt ...	30.1	15.4	18.9	.71	.61	.18
Per \$1000 Assessed Valuation by Municipality and School District						
Total Current Operating Expenditures:						
Cities	16.1	17.1	18.6	.29	.21	.21
Villages	27.1	23.1	25.3	-.11	-.03	.36
Rapid Growth	20.7	...	18.4	-.29	...	.18
Slow Growth	27.0	...	17.0	.28	...	.03
School Districts:						
Cities	13.2	14.6	12.5	.18	-.38	-.09
Local and Exempt ...	26.1	20.8	18.4	.12	.08	-.10
Per \$1000 Assessed Valuation—Real and Intangible Personality by Municipality and School District						
Total Current Operating Expenditures:						
Cities .....	...	15.9	12.5	...	-.42	-.32
Villages .....	...	18.1	24.2	...	.08	.02
Rapid Growth .....	...	14.3	22.9	...	.03	.33
Slow Growth .....	...	19.3	18.2	...	-.07	.15
School Districts:						
Cities .....	...	13.1	5.8	...	.13	-.16
Local and Exempt ...	...	22.3	16.4	...	-.23	.60

* 20 cities including Cleveland; 34 villages.

** 17 city school districts; 15 local and exempt.

Sources: Computed from data in Cleveland Metropolitan Services Commission, *The Cleveland Metropolitan Area—A Fiscal Profile*, Cleveland, 1958; Seymour Sacks, William F. Hellmuth, Jr., Leo M. Egand, *Financing Governments in a Metropolitan Area: The Cleveland Area Experience* (unpublished manuscript), 1959.

the 1940-1956 period. The cases of deviant behavior are more marked than for cities; skewness is much sharper. Both resource and expenditure patterns are much more divergent for villages than for cities in Cuyahoga County.

The coefficient of variation measures dispersion around the median. A decline in V is therefore equivalent to an increased clustering around median values and hence to an increase in the homogeneity of the distribution. But a

TABLE III
PATTERNS OF GOVERNMENTAL RESOURCES IN METROPOLITAN CLEVELAND

	Coefficient of Variation			Skewness		
	1940	1950	1956	1940	1950	1956
Per Capita Assessed Valuation, by Municipality *						
Cities	28.2	16.6	15.1	.76	.19	.10
Villages	34.0	29.3	28.1	.34	.55	.41
Rapid Growth	20.6	...	23.6	.00	...	.68
Slow Growth	31.3	...	18.1	.35	...	.22
Per Capita Assessed Valuation Real and Intangible Personalty, by Municipality						
Cities .....	...	17.7	13.4	...	.21	.27
Villages .....	...	25.3	27.7	...	.27	.62
Per Capita Residential Assessed Valuations						
Cities .....	...	...	19.9	...	...	-.13
Villages .....	...	...	23.3	...	...	.20
Per Pupil Assessed Valuation, by School District **						
Cities .....	...	22.6	25.5	...	.19	-.16
Local and Exempt .....	...	31.9	36.1	...	.15	.21
Per Pupil Assessed Valuation Real and Intangible Personalty, by School District						
Cities .....	...	16.7	16.4	...	.50	.05
Local and Exempt .....	...	33.5	30.4	...	-.01	.13

* 20 cities including Cleveland; 34 villages.

** 17 city school districts; 15 local and exempt.

Sources: Computed from data in Cleveland Metropolitan Services Commission, *The Cleveland Metropolitan Area—A Fiscal Profile*, Cleveland, 1958; Seymour Sacks, William F. Hellmuth, Jr., Leo M. Egand, *Financing Governments in a Metropolitan Area: The Cleveland Area Experience* (unpublished manuscript), 1959.

IV. VARIATION AND SKEWNESS

In addition to the conclusions that may be drawn from the frequency distributions, further relationships may be examined by two simple statistical measures available for testing homogeneity. The first of these is the coefficient of variation: $V = \frac{Q_3 - Q_1}{Q_2}$; the second is the Bowley measure of skewness: $Sk = \frac{q_3 - q_1}{q_3 + q_1}$; where $q_1 = Q_2 - Q_1$, $q_2 = Q_3 - Q_2$.

decline in V can also be associated with an increased asymmetry in the distribution. The degree of symmetry is measurable by Sk . Uniformity in the distribution can be judged only by examining both V and Sk . The computations are set forth for expenditures in Tables II and for resources in Table III.

Brazer has remarked that those who would explain variations in municipal expenditures have a great deal to explain. That this is distressingly true for

metropolitan Cleveland is well illustrated by the measure of V and Sk in the tables. Certain kinds of conclusions emerge; trends and relationships are evident. But there are very few expenditure and resource patterns without prominent exceptions. It is not easy to distinguish the underlying trends from the cases of deviant behavior.

Nevertheless, there are a number of conclusions that would appear to be warranted. These may be grouped as follows with respect to expenditures:

For Cities

1. Three of the four expenditure components are moving toward patterns of uniformity, as measured by changes in the coefficient of variation. The exception is streets and highways, where patterns are becoming somewhat more diffused. Skewness generally increased between 1940 and 1950, but was reduced again by 1956.

2. The total of current operating expenditures is more uniform than the components, with a slight increase in patterns of dispersion and a moderate increase in skewness over the period.

3. Growth brings a marked increase in the patterns of uniformity in municipal expenditures (cities and villages) and with no increase in skewness.

4. Expenditures in relation to assessed valuations, on either measure of assessments, show about the same trends and patterns as do per capita expenditures. In the slow growth municipalities, however, expenditures are more uniform when measured in relation to assessed values than when measured solely on a per capita basis.

For Villages

1. Trends toward uniformity are by no means as pronounced as for cities.

The coefficient of variation remains high for components and for the total of current expenditures. Skewness patterns are mixed.

2. When adjusted for differences in resources (assessed valuations) village expenditure patterns show somewhat greater homogeneity; skewness is indeterminate. Villages, to a lesser extent than cities, appear to spend in accordance with their resources.

For School Districts

1. For both classes of school districts expenditure patterns are much more homogeneous than for their counterpart municipalities. Skewness is decreasing in all cases except for one of the measures of expenditure in relation to resources.

2. The tendency for governmental expenditures to adjust to resources is also marked for school districts.

The conclusions that are most evident with respect to resource patterns are:

For Cities

1. Taxable resources are moving toward a more uniform distribution, for both measures of resources. Skewness in assessed values was sharply reduced between 1940 and 1950 and generally unchanged between 1950 and 1956.

2. Residential property, as judged by the single year 1956, is less uniformly distributed than total property.

For Villages

1. Resources are much less uniformly distributed than for cities, with only a moderate increase in homogeneity.

2. Positive skewness in the distribution of resources is increasing. A few villages exhibit a high and increasing concentration of taxable resources. Rapid growth for municipalities is as-

sociated with this increased concentration.

For School Districts

1. Per pupil assessed valuations are more uniform for city districts than for non-city districts, but with little change over the period for the city districts.

2. The distribution of taxable resources in local and exempt districts is about the same between 1950 and 1956; skewness is largely unchanged.

A general observation that emerges from the measurements set forth in the tables is that population growth is associated with greater homogeneity in expenditure patterns. Growth is also associated, although not as markedly, with a more uniform distribution of resources.

V. CONCLUSIONS

Economic development is always accompanied by increased specialization. As an economy industrializes and moves to higher levels of per capita income the number of skills in the labor force increases; jobs become differentiated; specialization develops within the labor force and among firms. There is considerable research to suggest that urbanization and growth within the metropolitan area bring similar specializations in the economic structure of both the central city and of satellite communities. Vernon has stressed this in his studies of the New York Metropolitan Region.¹⁶ The economic strength of the central city, and in particular of the central business district, lies in its ability to provide specialized services and prod-

ucts. Increased urbanization can be expected to bring economic differentiation to all central cities and within all metropolitan areas.¹⁷

The major conclusion of this paper, insofar as generalizations are possible from a single metropolitan county, is that the increased economic specialization within the metropolitan area is accompanied by an increased fiscal homogeneity. Both government expenditure patterns and taxable resources come to be more uniformly distributed among municipalities within the metropolitan area. There is a pronounced tendency, although with some prominent exceptions, for increased clustering around average values, for both expenditures and resources. However, and of almost equal significance, is the finding that this increased fiscal homogeneity, measured in terms of central tendency, is frequently accompanied by a persistent skewness. High expenditure and high resource communities persist, but tax havens among the municipalities, where high resource values and low expenditures are combined, tend to disappear.

A second conclusion is that school districts follow the same behavior pattern as municipalities but pursue it with more diligence. That is, the trends toward fiscal homogeneity are more pronounced here, and with far less skewness than for municipalities. This suggests that state aid patterns with equalization features, such as prevail in Ohio, do

¹⁶ See Raymond Vernon, *The Changing Economic Function of the Central City*, Committee for Economic Development, New York, 1959; Edgar M. Hoover and Vernon, *The Anatomy of a Metropolis*, Harvard University Press, Cambridge, 1959, esp. pp. 3-61.

¹⁷ A study based on 1940 Census data concludes that specialization and differentiation are greatest in the suburbs immediately around the central city and that as the economic influence of the central city diminishes at distances exceeding 20 miles suburban cities become undifferentiated. (Leslie Kish, "Differentiation in Metropolitan Areas," *American Sociological Review*, August 1954, pp. 388-398.) An exploration of this point using 1950 and 1960 Census data would be most useful.

bring uniformity in expenditure patterns. The organization of school district boundaries reflects a more uniform distribution of fiscal resources than is the case with municipalities, since the districts are larger, less numerous and less specialized than municipalities. The institutional framework in which public schools operate may also generate tendencies toward uniform school expenditure patterns, transmitted directly and indirectly by such agencies as state departments of education, institutions for teacher training and the organizations of professional educators.

These findings have relevance to those who are concerned with strengthening the fiscal base of metropolitan area government. The tendency for municipal and school district expenditures and resources to cluster increasingly around average values is hopeful. But the tendency of some municipalities to develop sharp patterns of deviant behavior is disturbing. The possibilities for metro-

politan-wide solutions to government expenditure problems and area-wide access to a common resource base are considerably enhanced if expenditure and resource patterns have common characteristics. It is the lack of fiscal homogeneity that contributes to the accumulation of special district governments, and to special-purpose state and federal grants-in-aid. The general trend toward fiscal uniformity, measured as variations around average expenditures and average resources, should make it possible to move toward metropolitan fiscal solutions that take the form of general purpose grants-in-aid or the utilization of area-wide income, sales or property tax bases.

Cases of deviant behavior will undoubtedly persist. Perhaps the time is coming when the more-favored communities will be willing to join with the less-favored in programs with an area-wide fiscal base.

DETERMINANTS OF STATE AND LOCAL GOVERNMENT EXPENDITURES: A PRELIMINARY ANALYSIS

GLENN W. FISHER *

AS TWO recent articles in this journal have pointed out,¹ the 1957 *Census of Governments* has provided an abundance of factual material concerning state and local governmental expenditure in the United States. Complete analysis of this material will require many years.

Many possible reasons can be advanced for the wide variation in state and local expenditure from state to state. The influence of differences in per capita income is widely recognized and almost always is taken into account. Differences in population density and degree of urbanization are somewhat less important but are often recognized as being factors which should be considered. Differences in the political or social characteristics of the states and in the "taste" for government are often mentioned. In connection with expenditure for particular functions, a number of special characteristics of the various states are often taken into consideration by those who attempt to explain the differences.

Some of the factors which are associated with variations in expenditure are easily quantified while others can be quantified only with difficulty, if at all. It is the purpose of this paper to make a preliminary analysis of the more important quantifiable factors and to present the "unexplained" variations in such a form as to invite further analysis of both quantifiable and non-quantifiable influences. The method is that of multiple regression analysis. The independent variables are those used by Fabricant in analyzing 1942 expenditure data: income, degree of urbanization and population density.² In this study estimating equations were computed and used to determine the "expected" expenditure for each state.³ Comparison of the "expected" and the actual expenditure for any given state suggests the extent to which factors other than the independent variables have influenced expenditure in the state.⁴

² Solomon Fabricant, *The Trend of Government Activity in the United States since 1900* (New York: National Bureau of Economic Research, Inc., 1952), pp. 112-139.

³ Expenditure data from: U. S. Census Bureau, 1957 *Census of Governments*, Advance Release No. 8, "State and Local Government Finances in 1957," (U. S. Government Printing Office, Washington, D. C., 1959). Per capita estimated population on July 1, 1956 was used to compute per capita expenditure. Since the Census Bureau used July 1, 1957 population data there are slight differences between the per capita expenditure amounts used in this study and those reported by the Census Bureau.

⁴ Correlation analysis indicates the extent to which two or more variables are associated. In a cause-effect (See next page)

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¹ Laszlo Ecker-Racz, "A Foreign Scholar Ponders the 1957 Census of Governments," *National Tax Journal*, Vol. XII, June, 1959, pp. 97-115; Alek A. Rozental, "Census of Governments—Footnotes on a Shoehorn," *National Tax Journal*, Vol. XIII, June, 1960, pp. 178-183.

All General Expenditure

The regression equation for estimating all general expenditure of state and local governments is:

$$X_{e1.234} = 56.25 - .1084X_2 \\ + .1845X_3 + 100.9244X_4$$

Where:

$X_{e1.234}$ = Estimated or "expected" per capita expenditure of state and local governments, 1957 (in dollars)

X_2 = Population per square mile, 1956

X_3 = Per cent of state population living in urban places, 1950

X_4 = 1956-1957, per capita income (in thousands of dollars)

The coefficient of multiple correlation ($R_{1.234}$) = .73 and the standard error of estimate (S_E) = 35.58.

The coefficients in the estimating equation indicate an inverse correlation between X_2 (population density) and governmental expenditure, while both X_3 (degree of urbanization) and X_4 (per capita income) are positively correlated with expenditures.

Table I shows the calculation of $X_{e1.234}$ (expected expenditure) for each of the 48 states. It is possible in this table to observe the magnitude of the effect which each of the independent variables has upon the "expected" expenditure in any given state.

sense it explains nothing. For example, a correlation between per capita governmental expenditure and per capita income could mean that high governmental expenditures cause high incomes, high incomes cause high governmental expenditures or that both are caused by an unknown third factor. In this study it is assumed that population density, degree of urbanization and per capita income, to the extent correlated with governmental expenditure, are "causes" and not effects. The macro-economist might quarrel with this assumption on the national level, but it seems to be a reasonable approximation of the truth at the state level.

The differences between $X_{e1.234}$ and X_1 (actual expenditure) expressed in units of one standard error are shown in the last column. Examination of the data in this column reveals that there are eight states in which state and local expenditures are more than one standard error less than expected expenditure. The eight states and the number of standard errors by which general expenditure varies from the "expected" expenditure are:

Delaware	- 2.25
Illinois	- 1.83
Missouri	- 1.65
Pennsylvania	- 1.59
West Virginia	- 1.49
Indiana	- 1.36
Ohio	- 1.24
Kentucky	- 1.00

The states on this list vary greatly in the characteristics under consideration. Both high and low income states are included. The one obviously constant factor is the geographic location. The eight states form a straight line westward from Delaware and Pennsylvania to Missouri. In light of the historical westward movements in this country it is tempting to speculate whether a westward movement has been involved here. Have attitudes toward government, constitutional provisions or other factors making toward lower levels of government spending been borrowed from the state to the east? Electronic calculators are not apt to provide an answer to this question, but perhaps historians, political scientists or legal scholars with a knowledge of the area would be able to shed some light on the problem.

There are seven states spending more than one standard error more than the "expected" expenditure. They are:

TABLE I

ALL GENERAL EXPENDITURE, "EXPECTED" AND ACTUAL, STATE AND LOCAL GOVERNMENTS, 1957

State	$A_{1.284}$	$- .1084X_2$	$+ .1845X_3$	$+ 100.9244X^4$	$= X_{el.284}$	X_1	$\frac{X_1 - X_{el.284}}{S_{11}}$
Alabama	\$56.25	-\$ 6.60	+\$ 8.08	+\$130.70	=\$188.43	\$180.40	- .23
Arizona	56.25	- .96	+ 10.24	+ 186.71	= 252.24	270.97	+ .53
Arkansas	56.25	- 3.60	+ 6.09	+ 116.57	= 175.31	149.15	- .74
California	56.25	- 9.29	+ 14.89	+ 253.32	= 315.17	330.92	+ .44
Colorado	56.25	- 1.70	+ 11.57	+ 196.80	= 262.92	287.12	+ .68
Connecticut	56.25	- 49.13	+ 14.34	+ 282.59	= 304.05	331.65	+ .78
Delaware	56.25	- 22.80	+ 11.55	+ 287.63	= 332.63	252.73	- 2.25
Florida	56.25	- 7.87	+ 12.08	+ 182.17	= 242.63	255.63	+ .37
Georgia	56.25	- 6.87	+ 8.36	+ 144.53	= 202.57	188.96	- .38
Idaho	56.25	- .81	+ 7.93	+ 166.53	= 229.91	240.73	+ .30
Illinois	56.25	- 18.38	+ 14.32	+ 245.75	= 297.94	232.94	- 1.83
Indiana	56.25	- 13.27	+ 11.05	+ 204.37	= 258.40	210.06	- 1.36
Iowa	56.25	- 5.32	+ 8.80	+ 176.62	= 236.35	238.54	+ .06
Kansas	56.25	- 2.76	+ 9.61	+ 180.15	= 243.25	272.40	+ .82
Kentucky	56.25	- 8.13	+ 6.79	+ 137.26	= 192.17	156.49	- 1.00
Louisiana	56.25	- 7.17	+ 10.11	+ 154.92	= 214.11	281.70	+ 1.90
Maine	56.25	- 3.24	+ 9.52	+ 167.53	= 230.06	211.69	- .52
Maryland	56.25	- 31.13	+ 12.73	+ 216.99	= 254.84	246.30	- .24
Massachusetts	56.25	- 65.92	+ 15.57	+ 231.62	= 237.52	293.24	+ 1.57
Michigan	56.25	- 14.40	+ 13.04	+ 221.02	= 275.91	267.15	- .25
Minnesota	56.25	- 4.42	+ 10.06	+ 182.67	= 244.56	261.27	+ .47
Mississippi	56.25	- 4.92	+ 5.15	+ 98.91	= 155.39	152.69	- .08
Missouri	56.25	- 6.61	+ 11.35	+ 196.30	= 257.29	198.69	- 1.65
Montana	56.25	- .49	+ 8.06	+ 190.75	= 254.57	289.49	+ .98
Nebraska	56.25	- 2.02	+ 8.65	+ 173.59	= 236.47	203.95	- .91
Nevada	56.25	- .25	+ 10.61	+ 244.74	= 311.35	376.32	+ 1.83
New Hampshire	56.25	- 6.80	+ 10.63	+ 183.68	= 243.76	246.75	+ .08
New Jersey	56.25	- 79.36	+ 15.98	+ 250.29	= 243.16	241.28	- .05
New Mexico	56.25	- .70	+ 9.26	+ 167.53	= 232.34	279.05	+ 1.31
New York	56.25	- 36.36	+ 15.77	+ 250.80	= 286.46	302.07	+ .44
North Carolina	56.25	- 9.72	+ 6.22	+ 134.73	= 187.48	164.21	- .65
North Dakota	56.25	- .99	+ 4.91	+ 145.84	= 206.01	259.88	+ 1.51
Ohio	56.25	- 23.98	+ 12.95	+ 225.06	= 270.28	226.23	- 1.24
Oklahoma	56.25	- 3.49	+ 9.41	+ 164.51	= 226.68	249.90	+ .65
Oregon	56.25	- 1.96	+ 9.93	+ 198.31	= 262.53	273.26	+ .30
Pennsylvania	56.25	- 26.32	+ 13.01	+ 211.44	= 254.38	197.75	- 1.59
Rhode Island	56.25	- 86.58	+ 15.53	+ 199.83	= 185.03	211.88	+ .75
South Carolina	56.25	- 8.31	+ 6.79	+ 118.59	= 173.32	157.41	- .45
South Dakota	56.25	- .98	+ 6.13	+ 147.35	= 208.75	244.69	+ 1.01
Tennessee	56.25	- 8.86	+ 8.14	+ 139.78	= 195.31	164.80	- .86
Texas	56.25	- 3.67	+ 11.57	+ 177.63	= 241.78	209.08	- .92
Utah	56.25	- 1.08	+ 12.05	+ 170.56	= 237.78	226.63	- .03
Vermont	56.25	- 4.33	+ 6.75	+ 169.05	= 227.72	248.55	+ .59
Virginia	56.25	- 10.06	+ 8.67	+ 166.53	= 221.39	193.49	- .78
Washington	56.25	- 4.35	+ 11.66	+ 211.44	= 275.00	291.55	+ .47
West Virginia	56.25	- 8.81	+ 6.38	+ 153.91	= 207.73	154.73	- 1.49
Wisconsin	56.25	- 7.51	+ 10.68	+ 192.77	= 252.19	247.51	- .13
Wyoming	56.25	- .35	+ 9.19	+ 201.31	= 266.40	329.53	+ 1.77
Mean	56.25	- 13.18	+ 10.25	+ 186.50	= 239.82	239.82	

Louisiana	+1.90
Nevada	+1.83
Wyoming	+1.77
Massachusetts	+1.57
North Dakota	+1.51
New Mexico	+1.31
South Dakota	+1.01

Massachusetts expenditures were inflated in fiscal 1957 by large expenditures for toll road construction. If this expenditure is excluded, Massachusetts remains on the list but does drop to near the bottom. Louisiana's presence on the list can undoubtedly be explained in terms of the basic political philosophy and modus operandi of the political group which has dominated the state for many years. The other states on the high expenditure list are characterized by being extremely thinly populated. This is grounds for suspicion of the mathematics used. The estimating equation, other things equal, provides higher expenditure estimates for the sparsely populated states but perhaps the estimates need to be higher still for the very sparsely populated states. If so, the linear functions used are not appropriate. An attempt to find the proper curvilinear functions might well be assigned to electronic computers.

Other Major Functions

The same independent variables were correlated with expenditure for each function except interest and "other" expenditure. The regression coefficients and the coefficients of multiple correlation are shown in Table II.

The predominance of negative coefficients in the X_2 column indicates that expenditure for most functions is reduced by dense populations. Only police and fire protection are the objects of greater expenditure in the densely popu-

lated states. In contrast, increased urbanization is more often associated with increased expenditure. The only functions for which per capita expenditure declines as urbanization increases are higher education, highways, natural resources and general control.

As would be expected, higher income states spend more than low income states for almost all functions. Only for public welfare and, strangely, other sanitation are expenditures greater in low income states than in high income ones. Quantitatively, the income variable is much more important than are either of the other independent variables.⁵

The coefficients of multiple correlation range from a high of .86 for police expenditure to a low of .38 for public welfare expenditure. These coefficients are high enough to indicate that multiple regression analysis has made a substantial contribution to explaining expenditure variation. They are also low enough to leave room for much further work.

The functional classification used by the Census Bureau in 1957 is somewhat different from that used in 1942, so exact comparison with Fabricant's results is not possible.⁶ In general, however, the 1957 coefficients are somewhat lower than the coefficient for the most nearly comparable 1942 classification. The most marked difference is in the

⁵ Because of this fact and also because the three independent variables are positively correlated with each other the researcher who depends upon casual observation of the data or even upon simple correlation analysis may miss the significance of (and the differences between) population density and degree of urbanization. Those of us who observe the governmental finance scene from the Great Plains are often disturbed by unqualified statements that governmental expenditures (or costs) rise with population density and urbanization.

⁶ Fabricant, *op. cit.*, p. 124.

case of welfare expenditure where our coefficient of .38 compares with a 1942 coefficient of .67.

The difference between actual and "expected" expenditure was computed for all functions for which the average per capita expenditure was more than \$10.00. The results, expressed in standard errors, are shown in Table III. Alabama, for example, spends .6 of one standard error less for state institutions

state or region will be able to explain many of the differences. In some cases, differences are the result of temporary factors such as the construction of toll roads or the timing of building programs. In other cases political or economic factors may be important. For example, it would seem a safe guess that the differences in public welfare expenditures in Virginia and Louisiana have something to do with the differ-

TABLE II

STATISTICAL RELATIONSHIP BETWEEN 1957 GOVERNMENTAL EXPENDITURE PER CAPITA AND INCOME PER CAPITA, URBANIZATION AND POPULATION DENSITY, 48 STATES

Function	Regression Coefficient of Independent Variable				
	Constant Term	Population Per Square Mile (1957) X_2	Per Cent Urban Population (1950) X_3	Per Capita Income (1956-57) X_4	Coefficient of Multiple Correlation
State Institutions of Higher Education	6.68	-.0235	-.0088	+ 5.6940	.61
Local Schools	15.91	-.0440	+ .2503	+ 23.5224	.79
Highways	23.57	-.0098	-.8783	+ 43.4448	.58
Public Welfare	16.59	-.0182	+ .4103	- 9.1954	.38
Health and Hospitals	- .13	-.0029	+ .1199	+ 6.0008	.68
Police	- 2.41	+ .0008	+ .0859	+ 2.6524	.86
Fire Protection	- 2.19	+ .0025	+ .0655	+ 1.2908	.82
Natural Resources	2.10	-.0170	-.0930	+ 7.1340	.54
Sewerage and Sewerage Disposal	- 2.63	-.0023	+ .0527	+ 2.6726	.59
Other Sanitation	- .20	.0000	+ .0770	- .9386	.69
General Control .....	.24	-.0045	-.0062	+ 5.8167	.67
All General Expenditure ..	56.25	-.1084	+ .1845	+ 100.9244	.73

of higher education than would be predicted by the estimating equation.⁷

Table III, along with the last column of Table I should be of considerable interest to those who want to compare the expenditure of particular states, after the effects of differences in income, population density and degree of urbanization have been removed. It is likely that persons familiar with a particular

ences in the political philosophy of the Byrds and the Longs.

It is likely that more intensive quantitative analysis of expenditures for individual functions would result in higher coefficients of correlation. There are independent variables which should be tested in the regression equations for particular functions. For example, the percentage of students attending private colleges might become a fourth independent variable in the regression equation for expenditure on higher education. Similar allowance could be made

⁷ The estimating equation for each function can be read from Table II. For higher education it is $X_{e1.234} = 6.68 - .0235X_2 - .0088X_3 + 5.6940X_4$.

TABLE III

DIFFERENCES BETWEEN ACTUAL AND "EXPECTED" EXPENDITURE, SIX MAJOR FUNCTIONS, 1957
(Expressed in Number of Standard Errors by Which Actual Exceeds Expected Expenditures)

State	State Institutions of Higher Education	Local Schools	Highways	Public Welfare	Health and Hospital	General Control
Alabama	- .6	- 1.1	+ 2	+ 2	- 4	- 3
Arizona	+ 1.2	+ 1.7	- 3	- .5	- 1.4	+ 8
Arkansas	- 3	- 1.1	- .7	+ .1	- .1	+ .1
California	+ 3	+ 1.2	- .9	+ .6	+ .1	+ .7
Colorado	+ 1.6	+ .1	+ .1	+ 2.8	- .4	+ 8
Connecticut	- .6	+ 3	+ 2.5	+ .4	- 3	- 1.0
Delaware	- .5	- 1.3	- 2.4	+ .2	- 1.1	- 1.9
Florida	- .8	- .9	+ .6	- 1.0	+ .6	+ 1.2
Georgia	- 1.1	+ .1	- .9	0	+ 1.4	- .1
Idaho	- 3	+ 3	+ 3	- 2	+ .4	+ .4
Illinois	- 1.3	- 1.9	- 1.0	- .8	- 1.2	- 1.7
Indiana	+ 1.6	- .7	- 1.3	- 1.1	- .5	- 1.0
Iowa	+ 7	+ 7	+ .6	+ 3	- .4	- 3
Kansas	+ 3	+ 4	+ 1.8	+ 2	+ .1	+ .1
Kentucky	- .9	- 1.3	- 1.0	- .1	- .5	- 1.0
Louisiana	+ 3	+ 7	+ .6	+ 3.0	+ 3	+ .6
Maine	- 1.3	- 1.6	+ .6	- 3	- .6	- .1
Maryland	- .4	- 3	+ 2	- 1.3	+ .1	- 1.5
Massachusetts	- 3	+ 2	+ 1.3	+ 1.6	+ 2.1	+ 1.1
Michigan	+ 2.0	+ 2	- .5	- .8	+ .8	- .9
Minnesota	+ 7	+ 1.4	0	0	+ 1.6	- .1
Mississippi	- .5	- .4	- .1	- .1	+ .4	0
Missouri	- 2.0	- 1.8	- 1.0	+ 2	- 1.0	- 1.2
Montana	+ 8	+ 1.2	+ .9	+ .6	- .7	+ .9
Nebraska	- .1	- .7	- .4	- .8	- .4	- .5
Nevada	- 3	- 1.2	+ .9	- 3	+ 2.5	+ 3.7
New Hampshire	- .5	- 1.5	+ 1.6	- .7	+ 1.5	- .4
New Jersey	+ 7	+ 1.1	- .6	- .7	- .9	+ .5
New Mexico	+ 1.7	+ 1.8	+ 1.0	- 2	+ 3	+ .9
New York	- 1.8	+ .5	- .9	0	+ 2.1	+ .9
North Carolina	- .4	+ 4	- 1.1	- .6	+ 3	- .7
North Dakota	+ .9	+ .7	+ .8	+ 3	+ .5	+ 1.2
Ohio	- .9	- .5	- .7	- .4	- 1.4	- .8
Oklahoma	+ 1.1	+ 2	+ 3	+ 3.2	- .9	- .2
Oregon	+ .5	+ 1.1	- .2	- 2	- .5	+ .7
Pennsylvania	- 1.6	- 1.0	- 1.2	- 1.0	- 1.5	- .4
Rhode Island	+ 2.0	+ 2	+ .6	- .8	- .4	+ 1.3
South Carolina	- .6	+ 1.0	- 1.1	- .9	- .8	- .5
South Dakota	+ 7	+ 1.2	+ 1.4	0	- 1.1	+ 1.3
Tennessee	- .8	+ .8	- .6	- .7	+ 3	- .9
Texas	- .9	- .1	0	- 1.0	- 1.5	- .9
Utah	+ 1.5	+ 1.2	+ 2	- 1.1	- 1.2	+ 2
Vermont	+ .4	+ 2	+ .7	+ .7	+ 3	+ .4
Virginia	- .6	- .6	- 3	- 1.5	- 2	- .6
Washington	+ .5	+ .5	0	+ 1.1	+ 7	- .6
West Virginia	- .5	- .7	- 1.9	+ 3	- .9	- 1.2
Wisconsin	- .7	- .8	- .4	- 3	+ .5	- .4
Wyoming	+ 1.0	+ 2.3	+ 1.8	- 2	+ 1.7	+ 1.1

for the effect of parochial schools upon expenditure for local schools.

Weaknesses or differences in the statistics for particular states also need to be taken into account. For example, New York's low expenditure on state institutions of higher education does not give a valid picture of expenditure on public higher education in the state. The municipal colleges in New York City are supported by local government and expenditures for these institutions are reported as expenditure for local schools.

Conclusions

Variations in population density, degree of urbanization and per capita income explain a considerable amount of the variation in per capita state and local governmental expenditure among the states. The degree to which these variables explain differences in expenditure for particular functions varies considerably. They explain a high proportion of the variations in expenditure for

police and fire protection but a very low proportion of the variations in expenditure for public welfare.

The use of multiple regression analysis does provide a better picture of the importance of population density and the degree of urbanization than the methods usually used. Too often the importance of these factors is overlooked because of the greater importance of the income variable.

The calculation of the difference between actual per capita expenditure and the expenditure "predicted" by the appropriate regression equation provides a means of comparing the expenditure of the various states after allowance for differences in population density, degree of urbanization and per capita income. These "unexplained" variations offer a fertile field for further study, using either quantitative or non-quantitative methods. The analysis, of course, tells us nothing about the desirable levels of expenditures.

THE TAX TREATMENT OF CAPITAL GAINS IN CANADA

IRVING J. GOFFMAN *

RECOGNITION of the existence of problem areas in the American tax structure in recent years has led to greater interest in the methods employed in other countries. This is particularly true for the taxation of capital gains because of its varied treatment around the world. While such gains are taxed in the United States, albeit at reduced rates, they are completely excluded in Canada. The difficulty there, however, is in differentiating between capital gains and ordinary income. In this article, an examination of the Canadian concept of "capital gains" is presented insofar as a determinable concept exists. The reason for doubt concerning its existence will soon become evident to the reader. For neither the statutes nor the judicial decisions offer a systematic definition which adequately separates capital gains from ordinary income.

The first Dominion income tax statute, the Income War Tax Act of 1917, specifically defined income as follows:

For the purposes of this Act, "income" means the annual net profit or gain or gratuity, whether ascertained and capable of computation as being wages, salary, or other fixed amount, or unascertained as being fees or emoluments, or as being profits from a trade or commercial or financial or other business or calling, directly or indirectly received by a person from any office or employment or from any profession or calling, or from any

trade, manufacture or business, as the case may be; and shall include the interest, dividends or profits directly or indirectly received from money at interest upon any security or without security, or from stock, or from any other investment, and whether such gains or profits are divided or distributed or not, and also the annual profit or gain from any other source; including the income from but not the value of property acquired by gift, bequest, devise or descent; and including the income from but not the proceeds of life insurance policies paid upon the death of the person insured, or payments made or credited to the insured on life insurance endowment or annuity contracts upon the maturity of the term mentioned in the contract or upon the surrender of the contract.¹

This definition remained virtually unchanged until 1948. It appears from the scope of the definition that the Canadian legislators had intended a very broad concept, and in this respect the Canadian legal concept is closely akin to the American. One writer has suggested that the phrase "and also the annual net profit or gain from any source;" which appeared in the above definition might have been used as a basis for taxing capital gains. However, in 1927, the semicolon was eliminated from the statute and the phrase lost its significance.² Nevertheless, it does seem

¹ Income War Tax Act of 1917, Sec. 3 (1). Statutes of Canada, Ottawa, 1917.

² J. R. Petrie, *The Taxation of Corporate Income in Canada* (Toronto, 1952), p. 33, fn. 4.

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as if the Income Tax Act was modelled substantially on the American legislation, bearing no resemblance whatever to the English act. However, the interpretation by the Canadian courts has differed markedly from that in the United States. Here the tendency has been to follow developments in the United Kingdom. Consequently, the many decisions embodied in English case law concerning the difference between income and capital gains have influenced the Supreme Court of Canada. From time to time British rulings are brought into this discussion in order to trace more completely the origins of certain Canadian practices.

From its very beginning, the Income War Tax Act of 1917 was interpreted to include only "ordinary" income—that is, income from a trade, business or profession, and to exclude "accretions to capital" whether realized or unrealized. To determine the nature of a gain, whether it be income or capital, the Canadian Supreme Court has followed the test laid down in England in 1904. The question to be asked is whether the gain in question was "made in an operation of business in carrying out a scheme for profit making."³ This criterion was first applied in Canada in a 1925 case, *Anderson Logging Co. v. The King*. In its decision the Court stated:

In dealing with the major question, it may be assumed, as it was assumed on the argument, that the distinction between

the accretions to capital, such as the capital profit realized upon the sale of a capital investment, and the profit derived from the labour, or capital, or both combined, in carrying on or carrying out a venture or a business for profit, is a distinction both admissible and proper . . .⁴

There is often, however, great difficulty in determining what constitutes carrying on a trade. It is a mixed question of fact on the one hand and law on the other. The nature of the transaction, its size and complexity, the frequency of entering into such a transaction and intentions of the taxpayer are all factors of importance. "It must be stressed that a transaction will be considered as a whole, that is, *all* of the circumstances surrounding it will be examined together in order to evaluate the *entire course of conduct* of the taxpayer."⁵ This all-embracing attitude of the courts is continuously evident in British and Canadian decisions, with the result that general principles are extremely difficult to discern.

The fact that a profit is realized in a single isolated transaction may indicate that no business is carried on and the profit would not be taxable. Again, much will depend upon the circumstances surrounding such transactions. The British treatment of such single or casual gains has been a long and varied one. As early as 1881, the courts held that "when a person *habitually* does a thing which is capable of producing a profit and enters into contract *habitually*, he is carrying on a trade or business."⁶ This introduced the criterion of

³ *California Copper Syndicate v. Harris*, 5 Tax Cases 159 (U.K. 1904). This test was officially adopted in the United Kingdom in *Commissioner of Taxes v. Melbourne Trust, Ltd.* [(1914) A.C. 1010], affirmed by the Judicial Committee of the Privy Council [(1926) A.C. 140] and subsequently reaffirmed by the House of Lords in *Ducker v. Rees* [(1928) A.C. 127].

⁴ *Anderson Logging Co. v. The King* (1925 Supreme Court Reporter 47).

⁵ *Commerce Clearing House Canadian, Ltd., Canadian Master Tax Guide* (Toronto, 1955), p. 26.

⁶ *My italics. Erichsen v. Laist*, 4 T.C. 427 (U.K. 1881).

periodicity into the definition of income. Consequently, "all casual non-recurring or occasional profits arising from transactions that do not form part of the ordinary business of the person who makes them" were excluded from taxable income until well after World War I.⁷ In 1920 the Royal Commission on the Income Tax recommended the elimination of the periodicity criterion and the elevation of the profit-motive or intention criterion to the position of sole determinant of income. This is the test they envisaged when they spoke of "any profit made on a transaction recognizable as a business transaction, i.e., a transaction in which the subject matter was acquired with a view to profit seeking."⁸ Although this recommendation was not embodied in the subsequent British statutes, Seltzer contends that it led the Board of Inland Revenue to consider as taxable income the profits of isolated transactions of a trading nature.⁹ This is certainly borne out by the court decisions. The leading case concerning such profits was *Martin v. Lowry* in 1927. An agricultural implements merchant who had never before had any connection with the linen business made a single purchase of a large quantity of linen and resold it at a profit. The court ruled that the original intention was to resell the linen at a profit and that the fact that there was only one purchase did not prevent the transaction from being a trade. The profit was therefore taxable income.¹⁰ Several subsequent court decisions in the

United Kingdom continued in this same direction.¹¹ However, other cases arose in which the courts refused to accept profit motive as conclusive evidence of a trade or business. In *Leeming v. Jones* the past trend in decisions was reversed. In this case the taxpayer purchased two rubber estates in order to sell them at a profit to a public company to be formed for the purpose. Yet the profit was considered a capital gain. In the decision Lord Buckmaster stated, "An accretion to capital does not become income merely because the original capital was invested in the hope and expectation that it would rise in value."¹²

It is evident, therefore, that British jurisprudence does not offer any easy solution to the problem of determining whether or not a transaction is in the nature of a trade or business. The decision in each case depends on the peculiar circumstances so that the dividing line between taxable income and capital gains is indeed difficult to perceive, especially in the borderline cases.

It has already been mentioned that the Income War Tax Act in Canada specifically defined income in terms similar to those contained in the American statutes. Yet, the Supreme Court of Canada specifically stated that its interpretation of the statute would follow British jurisprudence. That they carried out this intention is apparent from some of the early decisions.¹³ The pres-

¹¹ E.g., *Rutledge v. Commissioners of Inland Revenue*, 14 T.C. 490 (U.K. 1929).

¹² *Leeming v. Jones*, 15 T.C. 357 (U.K. 1930).

¹³ See *Anderson Logging Co. v. The King*, Supreme Court Reporter 49 (1925), and *Merritt Realty Co. v. Brown*, Supreme Court Reporter 187 (1932). In both these cases, the Canadian court relied upon the *California Copper Syndicate v. Harris* decision of 1904.

⁷ Royal Commission on the Income Tax, *Report*, London, 1920, p. 85.

⁸ *Ibid.*, paragraph 91.

⁹ L. Seltzer, *The Nature and Tax Treatment of Capital Gains and Losses*, New York, 1951, p. 256.

¹⁰ *Martin v. Lowry*, 11 T.C. 297 (U.K. 1927).

ent Canadian tax statute, enacted in 1949, did not, however, guarantee that the same reliance on British courts would continue. Since the new act ignored completely the old definition of income, it became a matter of conjecture whether the Canadian courts were likely to interpret the word "income" in its broadest sense as the American courts had done rather than in the manner of the English courts. The evidence thus far seems to indicate an interpretation much broader than the British.

Although the realization of a profit on the sale of a capital asset does not necessarily constitute carrying on a business, such profits are taxable if the venture is closely connected with a business activity which is already carried on. Thus, the sale of standing timber by a logging firm yields a taxable profit for two reasons: first, the company *intended* to make a profit on the timber when it agreed to a cutting contract; second, the sale of standing timber is a venture related to logging.¹⁴ This is in direct contrast to the treatment of similar ventures in the United States where standing timber is considered a section 1231 asset and, thus, receives capital gains treatment. Other examples of "closely related" ventures include a sugar refining company's profits from speculation on sugar futures,¹⁵ and a realtor realizing gains from dealing in mortgages.¹⁶ Both of the above decisions were based on the belief that the trans-

actions were closely allied with the taxpayer's usual occupation. The same argument was used by the Court when it declared the betting winnings of a race horse owner and trainer as taxable income.¹⁷ However, the same kind of winnings by a farmer were held not to be taxable income because they were not related to his ordinary business.¹⁸

Even if the transaction is unrelated to the taxpayer's ordinary course of business, the original intent of the taxpayer when he acquired the asset may result in the gain from its sale being classified as income. Thus, the profits realized from the sale of frozen eggs by an employee of a packing company were considered as taxable.¹⁹ The significance of this decision was not obvious at first. However, closer examination has led one writer to observe "that it is a short step from the taxation of the profit made from the speculative ventures in egg trading to the taxation of gains made in casual stock market speculation or, indeed, in any type of speculation."²⁰ The plausibility of this opinion has been supported by several subsequent decisions of the courts and the Appeal Board. For example, profit realized on the maturity of several short-term mortgages bought at a discount is taxable where the "whole course of conduct" shows that the gain is from a profit-making scheme rather than from an "investment."²¹ Similarly, profit made by a land realization company was declared taxable:

¹⁴ *Cabus Creek Logging Co., Ltd., v. Minister of National Revenue*, 3 Tax Appeal Board Cases 305 (1911). Minister of National Revenues will hereafter be abbreviated MNR, Appeal Board Cases ABC, and Dominion Tax Cases DTC.

¹⁵ *Atlantic Sugar Refining Co. v. MNR*, 49 DTC 605 (1949).

¹⁶ *Granatstein and Son, Ltd. v. MNR*, 55 DTC 396 (1955).

¹⁷ *Badamer v. MNR*, 3 Tax ABC 226 (1951).

¹⁸ *Walker v. MNR*, 2 Tax ABC 159 (1950).

¹⁹ *Brown v. MNR*, 1 Tax ABC 461 (1950).

²⁰ Petrie, *The Taxation of Corporate Income in Canada*, p. 43.

²¹ *No. 248 v. MNR*, 55 DTC 198 (1955).

... the whole object of this company, from its incorporation was to deal in these parcels of land and sell them as advantageously as possible. I find as a fact, therefore, that it was the business of this company to dispose of these parcels of property, at a profit if possible, and that that was their business. Under these circumstances, any profit realized by the appellant on the sale of the properties in question was income in its hands from its business and was liable for income tax under the provisions of the act.²²

Even an isolated transaction is taxable if the profit motive can be proven. For example, profit realized by two carpenters on resale of lumber salvaged from a lumber yard greatly damaged by fire was held to be taxable as resulting from an undertaking in the nature of trade.²³ However, in cases where the profit intention seems just as obvious, the courts have given opposite decisions. Profits realized within one year by a lawyer on three occasional transactions (purchase and resale of a gas lease, a salt lease and a quantity of gas-pipe) were held to be nontaxable capital gains.²⁴

Perhaps the most significant development occurred last year in *Regal Heights Ltd. v. M. N. R.* This company had purchased some land for the purpose of building a shopping center from which to derive rental income. This intention was established and accepted by the Court. The company, however, abandoned this original intention (due to the appearance of a rival center in the vicinity), and sold the land. The profit

was then taxed by the Minister as income while the taxpayer claimed it as a gain from the sale of a capital asset. Mr. Justice Dumoulin decided for the Minister on the grounds that the company's primary object was profit-making, and the fact that the profit was made on the sale of the capital asset rather than from its annual yield did not alter the situation.²⁵

The significance of this decision did not go unnoticed. A report in the *Canadian Tax Journal* stated:

This is a new and alarming concept in the capital gains field, since it means that if an investor sells shares, or rental property or any other income-producing asset, bought and held for the purpose of providing income, he can be held to have made a taxable profit and not to have received a capital accretion. In short, if this concept is adopted it means that there will be no more capital gains.²⁶

This cursory examination of several British and Canadian decisions leads to only one conclusion. Despite years of experience and a multitude of litigation, the distinction between income and capital gains is not a clear and simple one. Similar situations have often been the cause of opposite rulings by the courts. Nevertheless, a general statement can be made. In line with British jurisprudence, capital gains are completely excluded from taxation in Canada. Furthermore, the criteria applied to capital gains are basically those which have evolved in the British system. This entails an examination of all facets of the transaction in question: its nature and frequency, its relationship to the "trade" of the taxpayer, and per-

²² *Central Assets, Ltd. v. MNR*, 2 Tax ABC 331 (1950). This company, owned by two shareholders, owned only debt claims on land. From time to time a landowner would default on a payment and the land then reverted to the company and was resold.

²³ *Freoschel v. MNR*, 54 DTC 518 (1954).

²⁴ *No. 238 v. MNR*, 55 DTC 127 (1955).

²⁵ *Regal Heights v. MNR*, 60 DTC 1041 (1960).

²⁶ "Around the Courts," *Canadian Tax Journal*, Vol. VIII, No. 3 (May 1960), p. 172.

haps most important, the intentions of the taxpayer in originally purchasing the particular asset. However, the Supreme Court of Canada as well as the Appeal Board has, over the past fifteen years, shown a very marked movement away from British precedents. The bulk of the recent decisions appear to favor an expansion of the income tax base at the expense of "capital gains." This has resulted from a more rigid application of the capital assets criteria than has been the case in the United Kingdom. Nevertheless, capital gains are still recognized by the Canadian courts, and

such gains are not subject to taxation. Any change in this has occurred because of the shrinkage in the capital assets category and not because of an over-all change in policy concerning the taxation of capital gains. This was stated explicitly in the 1950 budget speech by the Minister of Finance, the Honourable D. C. Abbott: "Perhaps I might also take this opportunity, in view of recent public interest in the question, to assure the house that *it is not the policy of the government to tax capital gains.*"²⁷

²⁷ My italics. House of Commons, *Debates* (Ottawa, March 28, 1950), p. 1217.

THE BORDER TAX PROBLEM IN WASHINGTON *

HARRY E. MCALLISTER †

Purpose

THE purpose of the following analysis is to determine if the retail sales tax imposed in the state of Washington tends to cause persons in the Washington cities of Pullman, Vancouver, and Walla Walla to trade across the border in, respectively, Moscow, Idaho; Portland, Oregon; and Milton-Freewater, Oregon. At the time of this study (Summer, 1958), a $3\frac{1}{3}$ per cent tax was levied on retail sales including food. The tax has since been raised to 4 per cent.¹

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Many of my colleagues provided excellent comments from which I benefited at an early stage of the study. I am most indebted to John A. Guthrie who encouraged me to make the study and helped me set the framework within which it was carried out. In addition, he has read every draft and has offered excellent suggestions.

Valuable comments were also made by Eugene Clark, Millard Hastay, Eldon S. Hendriksen, Albert A. Montgomery, Kenji Okuda, Edgar A. Pessemier, Raymond H. Scott, and R. D. Tousley of our staff. In addition, helpful comments have been received from C. Harry Kahn and Ralph C. Nelson of the National Bureau of Economic Research. William Wolman, formerly of our staff and now with *Business Week*, also contributed. Frank Hachman conducted most of the interviews and made valuable suggestions. Martin A. Faulkner made many tables and in addition contributed pertinent comments that improved the study.

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¹ While it might appear obvious that people would shop in areas where there was a favorable tax differential, such a pattern could be altered by a number of factors. For example, if one drives 10 miles round trip to buy in a tax-free city and the variable cost in driving there is $3\frac{1}{2}$ cents a mile, a \$10 purchase is the break-even purchase if the tax is $3\frac{1}{2}$ per cent.

Technique Employed

In order to study this problem of trading in nearby states (often called the Border Problem), it was decided to take a sample of persons living in each of the three cities, find out where they last bought various classes of goods, and to learn the reasons they offered for shopping in cities other than their own. To evaluate properly results from each of the three cities, it was decided to set up somewhat comparable "control" cities not subject to the tax differential. The procedure followed in each case was to compare the border city with its "control" city, see if there was a difference in out-of-town trade, and then see if the reasons for differences (if any) might be attributed to the retail sales tax.²

A probability sample of 100 families was taken from each of the border cities and its "control," using city directories as the sampling frame. Every *n*th name was selected from a given city directory following a random start. Since the addresses in the city directories follow contiguous areas, the sample has elements of stratification and, therefore, has somewhat greater precision than a simple random sample would have. In some instances, it was necessary to supplement the sample because a new area had been built up since the directory was completed. Only those families

² The location of the border and "control" cities as well as some of the other cities discussed is shown in Chart 1.

who had lived in a city a year or longer were considered part of the population.

The city directories gave both names and addresses of the residents of a given city. Thus, each choice of a sample element meant a name and an address was chosen. The address was considered ruling and the family living at the address was interviewed whether the name corresponded to the directory name or

In examining the reasons given for shopping in other cities, it should be noted that the respondents were not given a series of choices. Instead, the questions were completely open end, and the replies as given by the respondent were recorded on the schedule. Later coding was, of course, necessary.

Pre-testing carried out in Pullman cast doubt on the accuracy of response

Chart I. LOCATION of BORDER and CONTROL CITIES



not. Once a sample unit was selected, no substitutions were permitted.

Original interviews, where contact could be made, were made without previous contact. In almost all cases where there was a refusal of the first interview, a letter was sent and another interviewer made the second call. The number of responses for the various cities was as follows: Pullman, 99; Moscow, 95; Renton, 94; Vancouver, 95; Walla Walla, 92; and Wenatchee, 97.

obtained in asking directly why the respondents would buy in a non-tax city. In line with other studies attempting to find out why people showed certain behavior patterns, it appeared better to ask why *people* would do their buying rather than ask the respondent why *he* had this pattern of purchase.

The respondents were asked why people purchased in other towns for only three of the categories of goods on which purchase information was gathered.

This procedure was adopted to shorten interviews and increase the frequency of response. The three types were chosen to represent categories somewhat broader than the stated category: refrigerators to represent relatively high-unit price durable goods that are purchased infrequently (Class I); groceries to represent goods that are ordinarily bought within a fairly close radius of homes (Class II); and women's dress clothing to represent style items (Class III).

towns and are nearly the same population size, with Pullman having the larger student population and Moscow the larger resident population. Also, each is surrounded by a predominantly agricultural region and has a similar economic profile. Education, however, is relatively more important to Pullman employment while construction, retail trade, and manufacturing are less important. Average family income is substantially higher for Pullmanites.

TABLE I
ECONOMIC CHARACTERISTICS OF BORDER AND "CONTROL" CITIES, 1950

A. Industry Group of Employment	Per Cent Distribution of Employed Males by Cities					
	Pullman	Moscow	Vancouver	Renton	Walla Walla	Wenatchee
Agriculture	5.6	5.4	1.1	1.0	5.4	4.7
Construction	5.4	8.9	12.2	8.7	15.2	13.5
Manufacturing	3.0	6.1	28.5	40.5	9.5	10.0
Transport and communication	2.7	4.1	10.9	6.9	8.5	13.0
Wholesale trade	1.4	3.9	3.9	2.8	6.5	7.5
Retail trade	12.2	17.9	14.9	14.7	20.5	21.2
Educational services, government	48.5	24.7	2.1	1.4	1.1	1.4
Public administration ..	3.2	4.4	6.4	7.0	7.4	5.2
Other	18.0	24.6	20.0	17.0	25.9	23.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
B. Median Family Income, 1949	\$3,754	\$3,388	\$3,492	\$3,520	\$3,697	\$3,642

Source: 1950 Census of Population, Vol. II, Characteristics of the Population.

Comparative Economic Characteristics of the Border and "Control" Cities

A "control" city should have an economic profile similar to the border city with which it is compared. Table I shows the economic profile of the border cities and "control" cities.

Pullman, Washington, and its "control" city, Moscow, Idaho,³ are eight miles apart. They are both university

Vancouver and its "control" city Renton, with populations of 32,080 and 16,836 respectively,⁴ are located within eight miles of larger cities; Renton near Seattle, Washington, and Vancouver near Portland, Oregon. Seattle had a population of 551,539 compared to one of 371,042 for Portland.

Relative employment by industry groups had about the same rankings for the two cities. However, manu-

³ Moscow differs from the other "control" cities in that it is also a trading center for Pullman residents.

⁴ The source for these population figures and all those following is: 1960 Census of Population, Preliminary Reports, Population Counts for States.

facturing dominates more strongly the economic profile of Renton while construction and transportation and communication are relatively more important in Vancouver. Median family income was slightly higher in Renton (Table I).

Both Walla Walla (24,476 population) and its "control" city of Wenatchee, Washington (16,712) are the largest cities within a fairly large

average family incomes were nearly the same for the two cities.

In evaluating the cities, it is also of interest to note some of their retail characteristics (Table II). Moscow, Idaho, is a larger retailing center than Pullman, Washington. In 1948, it had more retail establishments, sales, payroll, and employees. By 1954 this differential in favor of Moscow was even wider. Especially noteworthy is the fact that while

TABLE II
A COMPARISON OF SELECTED RETAIL CHARACTERISTICS OF THE BORDER AND
"CONTROL" CITIES, 1948 AND 1954

Characteristic, Date, and Per Cent Change	City					
	Border: Pullman	Control: Moscow	Border: Vancouver	Control: Renton	Border: Walla Walla	Control: Wenatchee
Number of retail establishments: 1948	88	110	354	189	301	227
1954	89	136	482	231	357	273
Per cent change	+1	+24	+36	+22	+19	+20
Retail sales (\$000): 1948	10,959	12,818	39,809	18,845	41,418	27,888
1954	9,702	16,325	47,064	28,094	43,973	37,682
Per cent change	-11	+27	+18	+49	+6	+35
Retail payroll (\$000): 1948	1,129	1,298	4,698	1,928	4,842	3,330
1954	1,002	1,537	5,399	3,114	5,548	4,221
Per cent change	-11	+18	+15	+61	+15	+27
Number of paid retail employees: 1948	602	631	1,912	803	2,107	1,514
1954	395	628	1,735	953	1,843	1,267
Per cent change	-34	-0.5	-9	+19	-13	-10

Source: 1948 *U. S. Census of Business*, Vol. III, *Retail Trade Area Statistics*. 1954 *Census of Business*, Vol. II, *Retail Trade Areas, Statistics*, Part 2.

radius. To find a larger city it is necessary to go about 100 miles from each. Both cities, then, are trade centers for a fairly large area.

As in the two previous cases, the economic profile of the two cities being compared is quite similar with retail and wholesale trade being dominant activities in each city. The only really significant variation in their profiles is the greater importance of transportation and communication for Wenatchee. Again,

Moscow increased its sales by 27 per cent over this period, sales declined in Pullman by 11 per cent.

For Renton and Vancouver, the greater size of the latter is accompanied by a larger volume of retailing. Its retailing growth rate was below that of Renton, however; a development that paralleled the population growth of the two cities. Walla Walla, Washington, was also larger than its "control" city of Wenatchee, Washington, and had a

greater number of retail establishments and dollars of retail sales. However, per capita sales for Wenatchee were above those for Walla Walla as was the growth rate from 1948 to 1954.

*The Border Problem of
Vancouver, Washington*

According to previous studies⁵ of retail trade, large cities not only draw customers from smaller ones that are close by, but they will draw more heavily the

ten categories of goods and services, comparing the relative attraction of the large cities for buyers in the smaller ones.

In examining the 10 categories of goods, it appears that small household appliances and groceries are more likely to be bought in Portland by Vancouver residents than in Seattle by Renton residents. Also, the table shows nearly the same proportion of large-city buying for drugs, men's and boy's everyday

TABLE III
THE RELATIVE EXPENDITURES OF VANCOUVER BUYERS IN PORTLAND, OREGON,
COMPARED WITH RENTON BUYERS IN SEATTLE, SUMMER, 1958

Category of Goods	Percentage of Buyers Living in First-named City Who Bought in Second-named City		Column (1) Minus Column (2)
	Vancouver-Portland (1)	Renton-Seattle (2)	
Drugs	3	3	6
Men's and boy's everyday clothing ..	9	9	0
Men's and boy's dress clothing	10	18	- 8
Women's and girl's everyday clothing	14	15	- 1
Women's and girl's dress clothing ...	17	26	- 9
House furnishings	18	36	-18
Large household appliances	18	18	0
Small household appliances	17	15	2
Repairs	5	9	- 4
Groceries	4	1	3

greater the ratio of their population. Following this principle, one would expect that Seattle (33 times as large as Renton) would draw Renton trade more heavily than Portland (only 12 times as large as Vancouver) would draw Vancouver trade. For similar categories of items, then, if the Vancouver-to-Portland attraction should exceed or be equal to that of Renton-to-Seattle, it would be necessary to look for special reasons to explain why the expected size attraction was overcome. Table III gives data for

clothing, women's and girl's everyday clothing, and large household appliances. For these six of the 10 categories of goods, then, Portland has a stronger attraction for Vancouver buyers than would be expected on a basis of comparative city size.

One reason that tends to influence people to shop in a city other than the one in which they live is if they have a job in that city. An examination of the comparative figures of the sample shows that approximately 25 per cent of Vancouver householders worked in Portland while approximately 35 per cent of

⁵ "New Laws of Retail Gravitation," P. D. Converse, *Journal of Marketing*, Vol. XIV, No. 3, pp. 379-84.

Renton householders worked in Seattle. Hence, the Portland-Vancouver buying differential would not tend to be explained by the working pattern; on the contrary, it would make the pattern even more unlikely.

Other reasons that people give for buying outside the city in which they live are listed in Table IV. It will be noticed that the table includes two sales tax categories. In some cases, respondents said that people would buy in Port-

goods. If those reasons are coupled with the buying patterns of Vancouver persons, it can be argued that in every case where the Portland buying by Vancouver residents exceeds the proportion that would be expected, some part of the reason for this pattern is to be found in the presence of the retail sales tax in Vancouver and its absence in Portland. Further evidence supporting this point is found in the comparison of the "not reasonable to buy there" categories of

TABLE IV
REASONS WHY VANCOUVER RESIDENTS BUY OR MIGHT BUY IN PORTLAND, SUMMER, 1958

Reasons	Class I: Refrigerators (per cent)	Class II: Groceries (per cent)	Class III: Women's and Girl's Dress Clothing (per cent)
Tax Reasons:			
Avoid the tax	25	37	5
Combination of "avoid the tax" and other reasons	23	13	7
Non-Tax Reasons:			
Selection	2	0	53
Price	9	4	4
Combination of selection and price ..	4	2	13
Not reasonable to buy there	3	7	1
Other non-tax reasons	16	17	7
No Reason Given:			
Don't know	13	15	5
No reply	5	5	5
Total	100	100	100

land to avoid the retail sales tax. These replies would be entered under "avoid the tax." However, a number of persons said that people would buy in Portland to get a better selection and also to avoid the tax, or they said that one could get a better selection and price as well as avoid the tax, etc. These answers were entered under "tax and other reasons."

In analyzing the table, it appears that people are quite conscious of the tax and are especially so for Class I and Class II

Table V. This classification was made because respondents, when asked about buying certain goods in another city, said that, in their opinion, it would not be reasonable to make purchases there. One would expect that Seattle should draw trade more heavily from Renton than Portland does from Vancouver. Hence, it should "be more reasonable" for Renton residents to shop in Seattle than Vancouver persons in Portland. This is not the case as the data show. In conclusion, it appears evident that the

Washington state retail sales tax is a factor that affects Vancouver residents shopping in Portland.

*The Border Problem of
Walla Walla, Washington*

In analyzing the border tax problem of Walla Walla, a somewhat different situation exists. Instead of being a smaller city losing trade to a larger one, Walla Walla, near the Oregon border, is the largest city within roughly a 100 mile distance. Wenatchee, its "control" city, is near the center of the state

TABLE V
COMPARISON OF "NOT REASONABLE TO BUY
THERE" CLASSIFICATION FOR VANCOUVER-
PORTLAND AND RENTON-SEATTLE,
SUMMER, 1958

Category of Goods	Not Reasonable to Buy There:	
	In Portland by Vancouver Residents	In Seattle by Renton Residents
Refrigerators	3	5
Groceries	7	22
Women's and girl's dress clothing ..	1	7

and is the largest city within a distance of 80 odd miles. Investigation of the proximity and size of other cities to these two reveals that Wenatchee is the more isolated of the two cities and on this count would be expected to hold much more of its home trade. However, as Table VI shows, the nearest city of any size to Walla Walla—Pendleton, Oregon (43 miles and 14,304 population)—does not draw trade from Walla Walla at all. The Tri-Cities of Pasco, Kennewick, and Richland, with respective populations of 14,377, 14,173, and 23,549 (located in Washington about 46 miles from Walla Walla), draw only a negligible amount of trade from it.

Other cities of any size are roughly comparable in distances from the two cities being compared. It would seem, under these circumstances and considering the fact that Walla Walla is larger than Wenatchee, that the home-purchase ratio of Walla Walla should be above that of Wenatchee unless other special circumstances caused a different pattern to occur.

The data of Tables VI and VII show the purchase patterns of the two cities for ten groups of commodities. Five categories show lower home purchase in Walla Walla and two show substantially the same ratio. The five categories with lower relative Walla Walla purchase are: Men's and boy's everyday clothing; men's and boy's dress clothing; women's and girl's everyday clothing; women's and girl's dress clothing; and house furnishings. In the classification of small household appliances and groceries, the percentages are substantially the same. An analysis, then, of Tables VI and VII shows that Walla Walla has lower home purchase than would be expected in seven out of ten categories of goods.

In Walla Walla the avoidance of the sales tax is a dominant reason given to explain why people might buy in Milton-Freewater and at the state line⁶ (Table VIII). For the three categories of goods considered, the percentages are higher than in the Vancouver-Portland situation. Even in the style items of women's and girl's dress clothing, the sales tax is a prominent reason for buying; in fact, it accounts for over a third of the reasons given. In the other two categories, approximately three-quarters

⁶ A shopping center has grown up just across the Washington state line on the Oregon side. Interestingly enough, it has spread and now part of the area is in Washington.

TABLE VI
THE PURCHASE PATTERNS OF WALLA WALLA BY SELECTED CATEGORIES OF GOODS, SUMMER, 1953

Category of Purchase	Per Cent of Last Buy Classified by City of Purchase									Total
	Walla Walla	Tri-Cities	Other Washington Cities	Milton-Freewater State Line	Pendleton	Other Oregon Cities	Idaho Cities	Other Cities	Mail Order	
Drugs	89	0	3	0	0	1	1	0	0	6
Men's and boy's everyday clothing ..	72	0	3	2	0	0	2	0	2	19
Men's and boy's dress clothing	67	0	1	1	0	4	1	4	2	20
Women's and girl's everyday clothing ..	71	0	2	2	0	0	1	1	2	22
Women's and girl's dress clothing ..	65	1	3	3	0	1	0	1	1	24
House furnishings	65	0	5	3	0	1	0	1	2	22
Large household appliances	84	1	2	5	0	0	0	1	0	7
Small household appliances	61	1	1	0	0	0	0	5	0	32
Repairs	84	0	1	0	0	1	0	0	0	13
Groceries	98	0	0	2	0	0	0	0	0	0

* Totals may not add to 100 because of rounding.

TABLE VII
THE PURCHASE PATTERN OF WENATCHEE BY SELECTED CATEGORIES OF GOODS, SUMMER, 1953

Category of Purchase	Per Cent of Last Buy Classified by City of Purchase								Total
	Wenatchee	Seattle	Other Washington Cities	Idaho Cities	Oregon Cities	Other Cities	Mail Order	Don't Know	
Drugs	85	0	2	0	0	1	1	11	100
Men's and boy's everyday clothing ..	87	3	0	0	1	1	1	4	100
Men's and boy's dress clothing	68	10	0	0	3	4	0	15	100
Women's and girl's everyday clothing ..	77	3	5	0	2	1	1	11	100
Women's and girl's dress clothing ..	71	11	4	0	1	4	1	8	100
House furnishings	69	5	0	0	2	0	3	20	100*
Large household appliances	81	3	8	0	2	3	0	3	100
Small household appliances	60	3	3	1	0	1	3	28	100*
Repairs	79	0	1	0	0	0	0	20	100
Groceries	98	0	2	0	0	0	0	0	100

* Totals may not add to 100 because of rounding.

of the reasons given for buying in these Oregon communities relate to the sales tax.

If the "don't know" group were apportioned in proportion to the other replies, the relative comparison on home buying between Walla Walla and Wenatchee would be changed in a few cases. However, the difference in this "don't know" classification between the two cities is, in the opinion of the in-

a population of 11,183 compared to 12,934 for Pullman; both figures include college students. Allowing for the approximately 2,000 more college students in Pullman, the non-student population is roughly the same.

On the basis of their relative size, then, the attraction should be about the same from Moscow to Pullman as it is from Pullman to Moscow unless there are basic economic differences in the

TABLE VIII
REASONS GIVEN WHY WALLA WALLA RESIDENTS MIGHT SHOP AT THE STATE LINE
OR IN MILTON-FREEWATER, SUMMER, 1958

Reasons	Goods for Which Reasons Were Asked		
	Class I: Refrigerators (per cent)	Class II: Groceries (per cent)	Class III: Women's and Girl's Dress Clothing
Tax Reasons:			
Avoid the tax	69	65	28
Combination of "avoid the tax" and other reasons	4	11	10
Non-Tax Reasons:			
Selection	0	0	7
Price	4	1	6
Combination of selection and price ...	1	1	1
Not reasonable to buy there	2	4	10
Other Non-tax reasons	3	5	15
No Reason Given:			
Don't know	9	5	15
No reply	8	8	8
Total	100	100	100

terviewers, due largely to the reluctance of buyers to admit that they bought in the non-tax area. Therefore, the relatively high proportion of respondents falling within the "don't know" classification actually reinforces the conclusion that Oregon purchases reflect, to some extent, a desire to avoid the sales tax.

The Border Problem of Pullman, Washington

Pullman, Washington, is eight miles from Moscow, Idaho. The cities are quite similar in size with Moscow having

trade areas served by each city. There may be differences in income and in the size of the respective trade areas for the two cities, with Pullman having a somewhat higher income level and Moscow serving a wider rural trade area. (Serving a wider area makes it possible for this retail center to support a greater selection of stores and goods.) The effect of such differences would be to make Moscow buying by Pullman residents somewhat more likely than Pullman buying by Moscow residents.

Table IX shows the relative pull of outside shopping districts upon residents

of Pullman and Moscow. The table shows conclusively that the dominant pattern of retail trade is from Pullman to Moscow in all the categories of goods examined. Also, as Table IX shows, Pullman shoppers buy much more frequently in Spokane than Moscow shoppers do. It appears reasonable to attribute this difference to income and selection reasons, and the deterrent of the sales tax on Moscow residents.

It seems clear that Pullman residents, on the average, buy over a wider area than Moscow residents. It is not clear, however, that income and selection fully account for the differences. Moreover, these reasons do not account for the greater Pullman shopping in Moscow than Moscow shopping in Pullman.

An analysis of the "not reasonable to buy there" answers shows that Pullman residents believe it more reasonable to shop in Moscow than it is for Moscow residents to shop in Pullman. For the three categories of goods about which respondents were questioned, in every case Pullman was considered a less reasonable place in which to buy. The figures are as follows:

Category of Goods	Percentage Indicating That It Is "Not Reasonable to Buy There"	
	In Moscow by Pullman Residents	In Pullman by Moscow Residents
Refrigerators	2	20
Groceries	6	27
Women's and girl's dress clothing ..	0	8

The above data can be considered a negative expression of the willingness of Pullman persons to buy in Moscow. What are the positive reasons given? For Class I and Class II goods the sales tax is overwhelmingly the most important reason given why people would purchase in Moscow (Table X). While

TABLE IX
RELATIVE TRADE OUTSIDE THE CITIES OF PULLMAN AND MOSCOW BY SELECTED CITIES AND STATES, SUMMER, 1958

Buying from First-named to Second-named Location	Category of Goods and Percentage of Buying									
	Drugs	Men's and Boy's Everyday Clothing	Men's and Boy's Dress Clothing	Women's and Girl's Everyday Clothing	Women's and Girl's Dress Clothing	House Furnishings	Large Household Appliances	Small Household Appliances	Repairs	Groceries
Pullman to Moscow	2	9	9	12	15	17	9	3	5	1
Moscow to Pullman	0	0	0	0	2	1	0	0	3	0
Pullman to Lewiston	0	3	0	1	4	6	3	0	2	0
Moscow to Lewiston	0	2	3	0	4	0	7	2	1	1
Pullman to Idaho	4	12	9	13	19	24	14	3	8	1
Moscow to Washington ..	1	5	6	3	14	16	10	5	4	0
Pullman to Spokane	3	6	15	10	22	24	11	11	6	0
Moscow to Spokane	1	5	3	3	10	14	8	8	1	0

* Pullman and Moscow are each 35 miles from Lewiston, Idaho; a city of 12,691 persons.

* Pullman and Moscow are about 76 and 84 miles respectively from Spokane, Washington; a city with a population of 180,882.

in the women's dress clothing category a much lower percentage indicates avoidance of the sales tax as a reason for Moscow purchases (5 per cent compared to 43 and 58), when the "sales tax and other" category is included some 17 per cent of buyers believe the sales tax to be important, even though selection is given as the dominant reason for this particular kind of goods.

buying in tax free cities were examined regardless of where the last purchases in the various categories of items had been made. In this section, the reasons of only those buyers making their most recent purchases in the tax-free cities will be analyzed and for types of goods the same or similar to those for which reasons were asked.

The data in Table XI show purchases

TABLE X
REASONS GIVEN WHY PULLMAN RESIDENTS MIGHT SHOP IN
MOSCOW, IDAHO, SUMMER, 1958

Reasons	Goods for Which Reasons Were Asked		
	Class I: Refrigerators (per cent)	Class II: Groceries (per cent)	Class III: Women's and Girl's Dress Clothing (per cent)
Tax Reasons:			
Avoid sales tax	43	58	5
Combination of "avoid the tax" and other reasons	24	15	12
Non-Tax Reasons:			
Selection	2	1	39
Price	10	0	6
Combination of selection and price ..	4	0	11
Not reasonable to buy there	2	6	0
Other non-tax reasons	8	9	20
No Reason Given:			
Don't know	6	10	6
No reply	1	1	1
	100	100	100

The evidence on both the reasons given for buying and on actual buying patterns indicate that Pullman residents buy in Moscow to a significant degree because of the Washington state retail sales tax.

*Reasons Given by Respondents
Actually Buying Items in the
Categories for Which
Reasons Were Given*

This section differs from the previous ones because in the former ones the reasons that all respondents gave for *people*

made by Pullman residents in Moscow, by Vancouver residents in Portland, and by Walla Walla residents in Milton-Freewater, and the reasons given why *people* living in the respondent city would purchase in the tax-free city. Each unit in the table represents the response of one family.

In considering the Pullman data, the groceries category offers no information on why Pullman residents bought groceries in Moscow. Only one family made its last buy in the tax-free city and gave "don't know" as the reason.

The categories of refrigerators and women's and girl's dress clothing offer more information. In the first classification of refrigerators (reasons were listed here for buyers of large household appliances for each of the three cities), of the nine purchases made three were made by persons giving avoidance of the sales tax as the most important reason for shopping in Moscow. Although the sample is small, the sales tax appears to represent a significant reason for purchasing in Moscow.

Purchases of women's and girl's dress clothing is not significantly related to the sales tax. Only one out of 14 families buying these goods in Moscow gave the tax as a reason. On the other hand, six out of the 14 gave selection as the most important reason, a significant indication of their motivation.

An examination of the reasons given by Vancouver residents buying large household appliances in Portland shows five out of 18 thought avoidance of the tax was the dominant reason for such a trade pattern. Another four coupled the tax with other reasons. Clearly, the sales tax is an important consideration when large household appliances are being purchased.

There is a low incidence of out-of-town buying of groceries (four such buyers in the sample). However, two out of the four gave the tax as a reason. While the sample is too small for the tax to be a significant reason, it nevertheless appears as an important one. The purchase of women's and girl's dress clothing was dominated by selection again as was the case for Pullman. The sales tax was not listed as a reason by even one of the respondents for this type of goods.

Walla Walla buying in Milton-Free-

TABLE XI
REASONS GIVEN BY ACTUAL BORDER CITY PURCHASERS WHY BUYING MIGHT BE DONE IN LISTED NON-TAX CITIES, SUMMER, 1958

Reasons Given for Purchase in Named City	Refrigerator			Groceries			Women's and Girl's Dress Clothing		
	Pullman in Moscow	Vancouver in Portland	Walla Walla in Milton-Freeewater	Pullman in Moscow	Vancouver in Portland	Walla Walla in Milton-Freeewater	Pullman in Moscow	Vancouver in Portland	Walla Walla in Milton-Freeewater
Avoid sales tax	1	5	3	0	1	0	0	0	1
Sales tax and other reasons ..	2	4	0	0	1	2	1	0	1
Price	1	2	0	0	1	0	0	2	0
Selection	1	0	0	0	0	0	6	11	0
Selection and price	0	1	0	0	0	0	1	0	0
Not reasonable to buy there ..	0	1	0	0	0	0	0	0	0
Other reasons	2	5	1	0	1	0	5	4	0
Don't know	1	1	0	1	0	0	1	0	0
Total	9	18	4	1	4	2	14	17	2

water again shows the impact of the sales tax. Three out of four buyers of large household appliances, both buyers of groceries and both buyers of women's and girl's dress clothing, for a total of seven out of eight, listed avoidance of the tax as a reason for buying in Milton-Freewater. However, while the tax is a significant reason for Walla Walla residents who shop in Milton-Freewater, the actual amount of buying there does not appear to be large.

Conclusions on the Border Problem

In every case for the three cities of Vancouver, Walla Walla, and Pullman,

the trade pattern is different from what would be expected if the sales tax were not a factor in buying decisions. An examination of the reasons given by buyers for purchasing in non-tax areas shows that escaping the sales tax is a dominant reason in people's minds. The unusual buying pattern, coupled with the fact that people overwhelmingly feel that the tax is important, makes it difficult to escape the conclusion that a desire to gain a price advantage by not paying Washington's retail sales tax is one important reason why border residents will shop in non-tax states.

THE INCIDENCE OF COMPACTS, GASOLINE CONSUMPTION, AND TAX REVENUE

VIRGIL L. CHRISTIAN, JR. *

THERE is substantial evidence that the increasing use of compact cars will soon alter the pattern of highway user taxes in those states that depend heavily upon the motor fuels tax. In Kentucky, for example, there have been three major sources of highway user revenue: the motor fuels tax, registration taxes scaled to the class of motor vehicle, and a usage tax paid by purchasers of new cars. Of the three the motor fuels tax has been by far the most important revenue producer, yielding about four times the combined total of the other two in recent years.¹

Year	Motor Fuels Taxes (in millions)	Sum of Registration and Usage Taxes (in millions)
1956	54.1	13.9
1957	57.5	14.4
1958	59.0	13.1
1959	60.9	15.1

However there are indications that Kentucky's fuel tax receipts in 1960 will be less than extrapolation of the recent trend would lead one to expect, and may, in fact, be smaller than in 1959. This is partly due to inordinately severe weather in February and March which reduced travel sharply in those months,

* The author is Associate Professor of Economics, University of Kentucky.

¹ Data from the Division of Planning, Kentucky Department of Highways.

but there is also reason to suspect that factors related to the composition of traffic are involved. It is not possible to prove this empirically as yet, since data from which 1960 estimates of traffic composition must be made come from sample counts and may therefore contain enough sampling error to modify the results, but such information as is currently available points up a reduction of from one to two million dollars in motor fuels receipts due to the presence of domestic compacts and small foreign cars in the traffic stream.² This agrees with the findings of a North Carolina study reported by James S. Burch, who said that "in October, the indicated theoretical gasoline tax revenue loss, due to these small cars, is in the order of 1.0 per cent as compared to the revenue from equivalent travel by conventional cars."³

Thus it seems safe to say that the smaller car is already making its presence felt, even if not seriously, and that its implications for the future are far more significant. If the shift from standards to compacts continues and the signs certainly point to it, then the tax planner is confronted with a dynamic situation in which both the final equilibrium condition and the path taken to it

² Counts taken on the rural portion of the Federal Aid Primary system show 3.9 per cent of all passenger cars are in these categories.

³ James S. Burch, "Gasoline Taxes and the Small Car," *Traffic Quarterly*, April 1960, p. 222.

are of great interest to him. Specifically, he must be able to project motor fuels receipts quite precisely over the fiscal periods immediately ahead in order to provide accurate budgetary information, and he needs to know what the final equilibrium will be in order to devise tax plans that will be reasonably equitable for various classes of vehicles over long periods of time. In this connection it is interesting to note, that the proportion of highway user taxes paid by automobiles in toto will diminish as the relative frequency of compacts in the traffic stream increases;⁴ also to note that the degree to which automobiles as a class meet their user tax responsibility will go down for the same reason. Taken together these imply that any subsidy to heavier vehicles which may exist in the present tax structure will be reduced if not entirely eradicated.⁵

It is most convenient to analyze the effect of compacts on user taxes by devising a model which will trace their incidence in the traffic stream over a period of years. To represent reality exactly in such a model is out of the question, and is, in fact, quite unnecessary; all we ask of the model is that it provide reasonably valid predictions. The explicit assumptions we shall use will be quite direct and but two in number: (1) In any given year a certain proportion, p_1 , of owners or potential⁶ owners of standard size cars will shift to compacts,

and a certain proportion, p_2 , of owners and potential owners of compacts will shift to standard size cars; (2) these proportions will remain unchanged through time. Lacking precise information as to the numerical values of p_1 and p_2 (there is certainly no reason to expect them to be equal) we shall examine the behavior of the system for different values of each.

Suppose we define two states, a_1 and a_2 , where the elements of a_1 are the individuals who prefer standard size cars and the elements of a_2 are the individuals who prefer compacts. We have assumed that a proportion p_1 of the elements of state a_1 will shift to state a_2 in a given time period and, likewise, that a proportion p_2 of the elements in a_2 will shift to a_1 in the same time period. It is evident that if the proportion of elements shifting from a_1 to a_2 were p_1 , then the proportion remaining in a_1 would be $(1 - p_1)$; and similarly for a_2 and p_2 . This type process behaves in a very definite way through successive stages and is known technically as a Markov process; the transition matrix which reflects the change from one period to the next is as follows:⁷

$$M = \begin{matrix} & \begin{matrix} a_1 & a_2 \end{matrix} \\ \begin{matrix} a_1 \\ a_2 \end{matrix} & \begin{pmatrix} 1 - p_1 & p_1 \\ p_2 & 1 - p_2 \end{pmatrix} \end{matrix}$$

Note that the entries in the matrix are all positive and that the entries in each row add to 1; such a matrix is known as a regular stochastic matrix and is quite useful in describing the path of the Markov process through successive time periods. For example, suppose that we are interested in determining the

⁴ This argument assumes that the proportion of automobiles in the traffic streams is relatively fixed, i.e., an increase in small cars means a corresponding decrease in standard sized ones.

⁵ There is little doubt that a subsidy does exist at the present time. See "Financing Kentucky's Roads and Streets," Bureau of Business Research, University of Kentucky, 1956.

⁶ A potential owner is one who would have bought into that class if he had bought at all.

⁷ An excellent elementary discussion of the mathematics involved here may be found in Kemeny, Snell, and Thompson, *An Introduction to Finite Mathematics*, Prentice-Hall, Inc., 1957, pp. 171-232.

proportion of elements in states a_1 and a_2 after one period has elapsed. If we let N be the total number of elements in time period O , then a certain proportion of them, say $.96N$, will be in state a_1 and the remainder, $.04N$ will be in state a_2 . According to our basic assumption a proportion, p_1 , of the elements in a_1 will transfer to a_2 in the first period and a proportion $(1 - p_1)$, of the elements in a_1 will remain in a_1 , so that the sum of the elements in a_2 after one period has elapsed would be $p_1 .96N + (1 - p_1) .04N$; likewise, the sum in a_1 would be $(1 - p_1) .96N + p_2 .04N$. It is possible to treat this process concisely by writing the initial condition as a two component row vector $(.96N, .04N)$, and multiplying the transition matrix by it:⁸

$$\begin{aligned} & (.96N, .04N) \begin{pmatrix} 1 - p_1 & p_1 \\ p_2 & 1 - p_2 \end{pmatrix} \\ & = [(1 - p_1) .96N + p_2 .04N, p_1 .96N \\ & \quad + (1 - p_2) .04N] \end{aligned}$$

The product itself is a two component row vector reflecting the number of elements in each state after the first period, and it can therefore be used in exactly the same way to determine the number in each state after the second period. If we let A denote the initial vector and M the transition matrix, then AM is the two component row vector representing the product on the right above and $(AM)M = AM^2$ would be a third vector giving the number of elements in each state after two periods. Continuing the argument in this manner we find that AM^n gives the number of elements in each state after n periods, i.e., the powers of the transition matrix may be used in conjunction with the initial condition vector to calculate the proportion of elements in each state after any number

⁸ *Ibid.*

of time periods have passed.⁹ In terms of the problem under discussion, this means that we can determine the number of compacts and conventionals for any predesignated future date—provided that our original assumptions hold.

There is an additional property of the regular stochastic matrix that is significant in the present connection: The powers of the matrix converge to a fixed condition such that the element in the i th row and j th column of M^n will be equal to the corresponding element in M^{n+1} .¹⁰ Mathematically speaking, this prescribes, for sufficiently large n , an equilibrium condition in which the proportion of elements in each state will remain constant from time period to time period because the shift of elements from a_1 to a_2 will just exactly offset the shift of elements from a_2 to a_1 : in our model this implies that once equilibrium is reached the proportion of conventionals and compacts will not change due to the fact that the shift from conventionals to compacts will exactly balance the shift from compacts to conventionals. A noteworthy fact about the equilibrium is that it depends only about p_1 and p_2 and is consequently independent of the initial position; again, in our model this means that the equilibrium proportion of compacts and conventionals depends upon the proportions which shift annually from one to the other and is independent of composition of the traffic stream at the present time—the current status is important

⁹ n need not be large in the numerical sense; it is quite possible for equilibrium to be reached in a few periods.

¹⁰ If we want the proportion of elements in each state after n periods, rather than the number, the initial vector would be written $(.96, .04)$ instead of $(.96N, .04N)$.

only in prescribing the number of periods required to reach equilibrium. The fixed point probability vector (t_1, t_2) defining the proportions of compact and conventional cars at equilibrium turns out to be $\left(\frac{p_2}{p_1 + p_2}, \frac{p_1}{p_1 + p_2}\right)$, i.e., the proportion of conventionals would be $\frac{p_2}{p_1 + p_2}$, and the proportion compacts, $\frac{p_1}{p_1 + p_2}$.¹¹

We are now ready to use the model to analyze the effects of present and future shifts to compact cars. Lacking information which would enable us to estimate p_1 and p_2 precisely, we shall consider different sets of values for each. Since the procedure is the same regardless of the particular values chosen, we shall follow it in detail for but one pair, $p_1 = 1/8$, $p_2 = 1/16$, and simply sketch the results for two others.

First, let us assume that $1/8$ of the owners of conventional size cars will shift to compacts and $1/16$ of the owners of compacts will shift to conventionals in the next time period. Then $p_1 = 1/8$, $p_2 = 1/16$, and at equilibrium $t_1 = \frac{1/16}{1/8 + 1/16}$

$= 1/3$, and $t_2 = \frac{1/8}{1/8 + 1/16} = 2/3$. This

means, of course, that two-thirds of the passenger cars would ultimately be in the compact category; but it is well to remember that many time periods might elapse before this limiting position would be reached. Moreover, as motor fuels tax receipts would be profoundly affected in the limit, it might be interesting at this point to calculate by just how much.

¹¹ See Kemeny, Snell, and Thompson, *op. cit.*, p. 222.

Let the total vehicle mileage in the initial period for all passenger cars be m , divided initially in a 96:4 ratio between conventionals and compacts, so that the total vehicle mileage for conventionals would be .96 m and that for compacts .04 m . Also, let the miles per gallon for conventionals be r and for compacts be $3/2r$. Then the total gallonage consumed would be $\frac{.96m}{r} + \frac{.04m}{3/2r}$, or $\frac{.987m}{r}$, which is 98.7% of $\frac{m}{r}$, the gal-

lonage that would have been consumed if conventionals alone had compiled the total passenger car mileage. Significantly, this indicates, even in the initial period, a 1.3 per cent reduction in motor fuels tax receipts from cars: if we assume receipts of \$45 million for the $\frac{m}{r}$ gallons

which would have accrued to conventionals then the loss would amount to almost \$600,000.¹²

The situation at equilibrium, moreover would be much more serious. Since conventionals would comprise $33 \frac{1}{3}$ per cent of automobile traffic, the gallonage consumed by them would be $\frac{1/3m}{r}$, and

for compacts it would be $\frac{2/3m}{3/2r}$, giving a

total of $7/9 \frac{m}{r}$, or seven-ninths of the gallonage which would have been consumed by conventionals alone. Incidentally, the fact that we have left total passenger car mileage at m is of no consequence in reckoning the percentage reduction in gallonage consumed. For if

¹² This could be construed as a very conservative estimate of the revenue loss to Kentucky in 1960—conservative because the counts providing the data were taken entirely on rural roads where compacts have less incidence than in urban areas.

we double the total passenger car mileage so that it becomes $2m$, then $\frac{1/3 \times 2m}{r}$

would be the gallonage consumed by conventionals, $\frac{2/3 \times 2m}{3/2r}$ would be the gallonage consumed by compacts, and the sum, $\frac{1/3 \times 2m}{r} + \frac{2/3 \times 2m}{3/2r} = 14/9 \frac{m}{r}$, is exactly

$7/9$ of $\frac{2m}{r}$, the amount which would

have been consumed by conventionals alone. Such a reduction in gasoline consumption, carrying with it a like reduction in motor fuels tax receipts, would certainly pose a serious problem: using the same \$45 million figure as in the initial period the reduction in revenue would be \$10 million, and it would be more, in absolute terms, if the total vehicle mileage increased.

It may be, however, that we are missing the really pertinent points of the analysis in considering the equilibrium condition. After all, forecasting the consumption habits of the American motorist for the number of years required to reach equilibrium is a risky business. Both p_1 and p_2 arise from psychological factors and are less likely to remain fixed for long than for short periods; this being the case it might be more profitable to examine the outcomes of the first two or three stages of the Markov process with the expectation that p_1 and p_2 will be fixed at least for that length of time.

Using the procedure outlined previously, we shall find the proportions of conventionals and compacts for the first three periods by computing AM (the initial probability vector times the transition matrix), AM^2 , and AM^3 .

$$AM = (.96, .04) \begin{pmatrix} 7/8 & 1/8 \\ 1/16 & 15/16 \end{pmatrix}$$

$$= (.8425, .1575)$$

$$AM^2 = (AM)M = (.8425, .1575)$$

$$\begin{pmatrix} 7/8 & 1/8 \\ 1/16 & 15/16 \end{pmatrix} = (.7470, .2530)$$

$$AM^3 = (AM^2)M = (.7470, .2530)$$

$$\begin{pmatrix} 7/8 & 1/8 \\ 1/16 & 15/16 \end{pmatrix} = (.6694, .3306)$$

Since we are dealing with only three periods of time, it is rather surprising to realize that the Markov process shows first $1/6$, then $1/4$, and then $1/3$ of the passenger cars to be compacts, even though we assume only $1/8$ of the conventional car users shift to compacts in any given period and offset this, in part with a backward shift of $1/16$ of compact users to conventionals. But the reason becomes apparent after brief reflection— $1/8$ of 96 per cent is quite large in comparison with $1/16$ of 4 per cent. As the system departs from its initial extreme position and approaches equilibrium, the amount of change per period will diminish markedly, but the number and proportion of compacts will have already become sizable by that time. Suppose, as before, that the total vehicle mileage for all passenger cars were m so that the total gallons of gasoline consumed would be $\frac{m}{r}$ if all cars were of standard size; then we find the following effect of compacts on gallons consumed in the three periods:

$$(1) .8425 \frac{m}{r} + \frac{.1575m}{3/2r} = .9475 \frac{m}{r},$$

a reduction of more than 5 per cent.

$$(2) .7470 \frac{m}{r} + \frac{.2530m}{3/2r} = .9157 \frac{m}{r},$$

a reduction of more than 8 per cent.

$$(3) .6694 \frac{m}{r} + \frac{.3306m}{3/2r} = .8898 \frac{m}{r},$$

a reduction of more than 11 per cent.

When we recall the previous argument showing that these percentages are

independent of the absolute amount of $\frac{m}{r}$ and would be just as valid in the presence of a trend in receipts as they are for the fixed amount $\frac{m}{r}$, then we must envision serious consequences for motor fuels tax receipts. In fact, if we associate a figure of \$45 million with $\frac{m}{r}$, then the loss in revenue would be first \$2 million, then \$3 million and finally \$5 million.

The reader might at this time object to these conclusions, asserting that the chosen values of p_1 and p_2 have pointed the model toward increased use of compacts. While this may be true, it does seem consistent with what we observe in the real world since even the most casual observation of the character of the traffic stream over the last few years shows a steady rise in their number relative to other vehicle types. Nevertheless, we shall select a second set of values of p_1 and p_2 and again examine the outcome, being careful this time to make the situation more favorable to the conventional size car.

Suppose p_1 and p_2 are both taken to be one-tenth: then the transition matrix be-

comes $M = \begin{matrix} & a_1 & a_2 \\ \begin{matrix} a_1 \\ a_2 \end{matrix} & \begin{pmatrix} 9/10 & 1/10 \\ 1/10 & 9/10 \end{pmatrix} \end{matrix}$ and the equilibrium position, $\left(\frac{p_2}{p_1 + p_2}, \frac{p_1}{p_1 + p_2} \right)$, shows

half the elements in each state. Gallons consumed would decline from $\frac{m}{r}$ to $\frac{.5m}{r}$

+ $\frac{.5m}{3/2r}$, or $.83 \frac{m}{r}$, indicating a loss of 17

per cent in that part of motor fuels receipts accruing to automobiles. The proportions of conventionals and compacts for the first three periods would

be found exactly as before:

$$AM = (.96, .04) \begin{pmatrix} 9/10 & 1/10 \\ 1/10 & 9/10 \end{pmatrix} = (.868, .132)$$

$$(AM)M = (.868, .132) \begin{pmatrix} 9/10 & 1/10 \\ 1/10 & 9/10 \end{pmatrix} = (.7944, .2056)$$

$$(AM^2)M = (.7944, .2056) \begin{pmatrix} 9/10 & 1/10 \\ 1/10 & 9/10 \end{pmatrix} = (.736, .264)$$

Continuing the calculations along the lines previously established, we find losses in gasoline consumption of over 4 per cent in the first period, nearly 7 per cent in the second, and nearly 10 per cent in the third.

Finally, we shall take a third set of values of p_1 and p_2 and this time load the model heavily in favor of the conventional car. Specifically, let us assume that one eighth of the users of compacts switch to conventionals and only one twelfth of the users of conventionals switch to compacts in each unit of time. Then the transition matrix becomes

$$\begin{pmatrix} 11/12 & 1/12 \\ 1/8 & 7/8 \end{pmatrix},$$

and the equilibrium fixed vector,

$$\frac{1/8}{1/12 + 1/8}, \frac{1/12}{1/12 + 1/8},$$

shows 40 per cent compacts in the traffic stream as opposed to the present 4 per cent, and indicates a reduction of 13 per cent in automobile fuel consumption and tax receipts. The amount of change in the first three periods is also surprising since manipulation of the matrix yields first 11.5 per cent, then 17.4 per cent, and finally 22.1 per cent compacts, with revenue losses of 3.4 per cent, 5.5 per cent, and 7.4 per cent.

The Markov model has now been used to predict changes in the incidence

of compact cars for three different sets of values of p_1 and p_2 and it has indicated an immediate sharp rise in each case. Furthermore, it has pointed toward equilibrium conditions which allow for nearly as many, if not more, compacts than conventionals. The values of p_1 and p_2 were deliberately chosen in such way as to represent widely divergent conditions and the fact that they all tend to the same general conclusion is the most significant thing we have discovered. The conclusion, in fact, seems so general that we can avoid it only by arguing that the model itself is an inappropriate conceptualization of the process of adjustment. It might, therefore, be well at this point to recognize some of the possible weaknesses in the model in order to assess the degree to which its results may be modified.

First of all, the model assumes that a compact car replaces a conventional one, i.e., the small car is bought in place of one of standard size rather than in addition to it. In essence, then, the compact represents no increase in the total number of automobiles over that which would have existed in its absence, but rather involves the direct substitution of a smaller for a larger car. Second, the analysis presumes that vehicle mileage is a function of the total number of cars but not of their type; average annual travel is the same for compacts as for standard size cars. And, as another part of the same problem, the calculations we made relative to comparative rates of fuel consumption ignored the place of travel—rural v. urban—which suggests that the rates are the same everywhere: in the light of present information this

is not at all certain. Third, the projected reduction in fuel consumption has been based on a constant ratio in miles per gallon as between the two automobile types. Should compacts get larger or heavier, or standard size cars smaller and lighter, then the amount of cutback would be less than we have supposed. Lastly, the model describes a time path and reaches an equilibrium that depends solely upon p_1 and p_2 , and consequently relies upon stability in these proportions over a considerable period. The fact that they reflect psychological propensities and are susceptible to changes in consumer preferences must then be recognized as a final qualification. However, and it is well to emphasize this, even moderate alterations in their values would not alter the general direction of the movement toward equilibrium nor change the equilibrium values themselves markedly.

All the foregoing comments relate to the basic assumptions of the model. The general inference we might draw from them indicates that none of these assumptions is unqualifiedly true, but that each has a considerable element of truth in it. After all, it is never possible to represent complex situations precisely in a model: abstraction by its very nature involves both modification and simplification of reality. Whether the modification and simplification is sufficient in the case to invalidate the model's prediction is an open question, but unless we can answer that question in the affirmative, the outlook with respect to motor fuels taxes is disquieting, to say the least.

A NEW PROPOSAL FOR COORDINATION OF DEATH TAXATION

JAMES A. MAXWELL *

Introduction

IN THE years after World War I, state officials campaigned vigorously for repeal of the federal estate tax. They had been irritated when, in 1916, the tax was enacted, and they now urged that prior state occupancy, and the fact that property at death passes under state laws, justified complete federal withdrawal from this tax field. A few voices had, indeed, expressed doubt that the states could successfully utilize a system of death taxes, and they could illustrate their opinions by pointing out the small amount of state collections, the diversity of rates, exemptions, and definitions, and the unhealthy growth of discriminatory practices, particularly in taxation of non-resident decedents. The National Tax Association in 1924 sponsored a conference of state and local representatives to consider reform of death taxation, and this conference appointed a nine-man committee of investigation, headed by F. A. Delano, which was to report to a second conference. The deliberations of the Delano Committee coincided with those of the Ways and Means Committee, and the Honorable W. R. Green, chairman of the latter committee, invited the Delano Commit-

tee to consult with it. The Delano Committee was going to recommend repeal of the federal estate tax within a period of six years. But a strong feeling existed that, within this interval, the states should root out discriminatory taxation and make an approach to uniformity in definition, exemptions, and rates.

At this very time, 1924-25, the tax officials in many states were frightened by a threat to their system of death taxes arising within their own ranks. Florida in 1924, by constitutional amendment, forbade enactment of death taxes by its legislature. By supplementing the attractions of its climate with the attractions of a tax-haven, Florida hoped that rich people would domicile themselves within its borders. Nevada took the same step in the same hope in 1925.

It happened that, in 1924, the federal government had offered a 25 per cent credit against the federal estate tax for payments of state death taxes. Could not this device be enlarged to eliminate the moves by Florida and Nevada, to give all the states an opportunity to reform their taxes, and to add to state and reduce federal revenues? Accordingly an 80 per cent credit was provided, and the tax advantages sought by Florida and Nevada were largely cancelled.

This was the apogee of the movement for repeal of the federal tax. Many state officials were, on the one hand, pacified by the 80 per cent credit, and, on

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the other hand, timid over the prospect of federal withdrawal. For a few years progress toward reform was made through state action, notably adoption of reciprocity, and through decisions of the Supreme Court, especially concerning situs of intangibles.¹ For 1931, credits for state taxes offset, on the average, 75.6 per cent of federal tax liabilities; the number of states using estate tax only had risen from two in 1925 to seven in 1932, and the number using estate and inheritance taxes jointly had risen from three to twenty-seven.² But in 1931-32, all such progress stopped because of the depression. Congress underlined the block when, in 1932, it enacted a supplementary estate tax (with an exemption of \$50,000) to increase federal revenues. The 80 per cent credit against the 1926 tax was retained, but the idea of repeal was no longer contemplated. On several later occasions, Congress increased the federal rates and altered the exemptions in order to increase federal collections,³ while excluding the states from participation. As a result, the state death tax credit in relation to federal estate tax liability declined to 9.8 per cent in 1959. One federal objective of 1926—providing the states with a larger slice of death tax revenue—had been effectively sidetracked, and so also had been the objective of federal withdrawal.

¹ Maxwell, *Fiscal Impact of Federalism* (Harvard University Press, Cambridge, 1946), pp. 340-41.

² Oakes, E. E., "The Federal Offset and the American Death Tax System," *Quarterly Journal of Economics*, August 1940, p. 576. Advisory Commission on Intergovernmental Relations, *Coordination of State and Federal Inheritance, Estate, and Gift Taxes* (January 1961), p. 39.

³ The specific exemption which was \$100,000 under the 1926 act, was reduced to \$50,000 in 1932 and \$40,000 in 1935. Further changes were made in 1942 and 1948.

What of the objective of tax coordination? Here one accomplishment must be conceded: the threat of disintegration of state death taxation, through interstate competition, was averted and, at present, of the fifty states only Nevada has no death tax. The unruly behavior, 1924-25, of two states (Florida and Nevada), with 1 per cent of the population of the nation, had been stifled by the 80 per cent credit which *did* put a floor under state death tax liability. The credit, which gave a federal tax reduction to estates of decedents for state death taxes, *did* discriminate against estates of decedents in Florida and Nevada in order to halt the spread of interstate competition in tax reduction.

In the past thirty-odd years, state governments, under no pressure to move toward uniformity in type of tax, definitions, rates, exemptions, deductions, exclusions, and administrative practices, but under considerable pressure to secure additional revenues, have erected a complicated congeries of death taxation. The Advisory Commission on Intergovernmental Relations found five main variants, shown in Table I.

The pure "pick-up" taxes—in five states—are modeled on the federal statute and aim "to impose a tax liability equal to the maximum credit... allowed under Federal law."⁴ But several states have modified this pick-up pattern in order to raise more revenue. Thirty-nine states use inheritance taxes, and thirty-five of these use pick-up taxes as supplements in order to secure "unused" federal credits. No shorthand way exists to display the full variation in state death taxes, but the table following may serve to indicate the wide range of amounts of tax imposed by the

⁴ *Ibid.*, p. 34.

states on net estates of varying amounts left one-half to the widow and one-fourth to each of two adult children. The wide differences in tax due from both large and small estates is startling.

Revision of Credits Recommended by the Advisory Commission

On December 8, 1959, President Eisenhower announced the membership of a new Advisory Commission on Intergovernmental Relations. This body of twenty-six members drawn from Con-

sidered: (1) a straight increase in the credit; (2) supplements to the present credit; (3) credits based on the *present* tax liability (instead of that of 1926); (4) graduated credits, higher on low and medium, than on large estates. It favored the fourth alternative: specifically, replacement of the present system with a two-bracket graduated credit which would make available a relatively large share of federal tax liabilities in the lower tax brackets and a smaller share in the higher brackets. This

TABLE I
TYPES OF STATE DEATH TAXES

Type of Tax	State
"Pick-up" tax only (5)	Ala., Ariz., Ark., Fla., Ga.
Estate tax only (2)	N. D., Utah
Estate tax and "pick-up" tax (3)	Miss., N. Y., Okla.*
Inheritance tax only (3)	Oreg.*, S. D., W. Va.
Inheritance tax and "pick-up" tax (36)	Alas., Calif.*, Colo.*, Conn., Del., D. C., Hawaii, Idaho, Ill., Ind., Iowa, Kans., Ky., La.*, Maine, Md., Mass., Mich., Minn.*, Mo., Mont., Nebr., N. H., N. J., N. M., N. C.*, Ohio, Pa., S. C., Tenn.*, Tex., Vt., Va.*, Wash.*, Wis.*, Wyo.
Inheritance, estate, and "pick-up" taxes (1)	R. I.*
No tax (1)	Nev.

* Has also gift tax (12).

Source: Advisory Commission on Intergovernmental Relations, *Coordination of State and Federal Inheritance, Estate, and Gift Taxes* (Washington, 1961), p. 35.

gress, the Executive branch, Governors, State Legislatures, Mayors, and elected county officers is a permanent Commission designed to advance cooperation among levels of government and to improve the effectiveness of the federal system. Its first major effort at tax coordination is embodied in a report: *Coordination of State and Federal Inheritance, Estate, and Gift Taxes*.

The Commission recommends that Congress increase the federal credit in order to spur the states toward coordination and to provide a modest increase in state revenues. Four alternatives were

would, therefore, be relatively favorable to the poorer states. While the Commission made no recommendation on the *size* of the credit, regarding this as a policy decision for the President and the Congress, it illustrated the effects of a credit equal to 80 per cent of gross federal tax liability on the first \$250,000 of taxable estates, and 20 per cent on the balance.⁵ This would increase the aggregate credit (based on 1959 figures) from \$131.5 million to \$369.4 million, i.e., by 386 per cent.⁶

⁵ *Advisory Commission Report*, p. 66. Other illustrative credits are given.

⁶ See next page.

STATE DEATH TAXES ON SELECTED SIZE ESTATES, LEFT ONE-HALF TO THE WIFE AND ONE-FOURTH TO EACH OF TWO ADULT CHILDREN

Net Estate After Deductions, but Before Specific Exemptions			
\$50,000	\$100,000	\$500,000	\$1,000,000
Amount of State Tax	Amount of State Tax	Amount of State Tax	Amount of State Tax
No. of States	No. of States	No. of States	No. of States
\$ 0-\$ 99	\$ 0-\$ 399	\$ 3,500-\$ 8,499	\$10,000-\$18,499
1	2	11	13
100-199	400-799	8,500-13,499	18,500-26,999
4	6	7	5
200-299	800-1,199	13,500-18,499	27,000-35,499
5	12	10	8
300-399	1,200-1,599	18,500-23,499	35,500-43,999
13	9	8	9
400-499	1,600-1,999	23,500-28,499	44,000-52,499
5	6	5	2
500-599	2,000-2,399	28,500-33,499	52,500-60,999
4	4	5	7
600-699	2,400-2,799	33,500-38,499	61,000-69,499
1	2	1	1
700-799	2,800-3,199	38,500-43,499	69,500-77,999
3	0	1	2
800-899	3,200-3,599	43,500-48,499	78,000-86,499
2	1	0	0
900-999	3,600-3,999	48,500-53,499	86,500-94,999
1	1	1	1
39	42	49	49

Source: Derived from *Advisory Commission Report*, Appendix, Table J.

The Commission pointed out that such a two-step credit, in comparison with one which provided a uniform percentage, would be favorable to the smaller, non-industrialized states.⁷ The table below shows, for five "rich" and five "poor" states, credits for 1959 and estimated credits under alternative four. In absolute terms the increase for the former group is four-fold, for the latter group, ten-fold. This effect would, however, be somewhat erratic. Moreover, some positive correlation remains between state income and the amount of the new credit. The "equalization" produced by the new credit is simply a relative improvement in the revenue situation of the poorer states.

TABLE II

	Present Credits, 1959 (1)	Alternative Four Credits (2)	(2) + (1)
	(millions of dollars)		
Delaware	442	2,144	486%
Connecticut	7,002	20,977	299
Nevada	25	690	276
New York	25,833	99,762	286
California	16,015	79,576	498
	49,317	203,149	412%
South Dakota ..	45	856	1,902%
Alabama	461	3,946	855
South Carolina ..	255	2,819	1,106
Arkansas	196	1,965	1,000
Mississippi	215	2,093	973
	1,172	11,679	995%

Source: Derived from *Advisory Commission Report*, Table 13.

The two-step graduated credit was also favored by the Commission because it would "contribute significantly to the stability of the States' revenues. . . ." Death taxes are, at best, an unstable

⁶ The percentage increase going to the different states would, however, range quite widely from under 200 per cent to over 2,500 per cent.

⁷ *Advisory Commission Report*, pp. 70-73.

source of revenue, and this instability is aggravated when the taxing jurisdiction is small. Yet the states, "because their facilities for deficit financing of operating costs (as distinguished from capital outlays) are limited," need stable revenues.⁸

The Commission recommended that two conditions be attached to the new credit: (1) revenue-maintenance, and (2) a shift to estate taxes.

Revenue-maintenance: On the average, state death tax collections over the last decade have been about 2.8 times the old credit. This meant that many estates had "receipts for State death taxes" not fully used which could be used if the federal credit were increased. For this reason "the immediate effect of an increase in the federal credit, especially in the lower brackets would be federal tax reduction, not increased state collections."⁹ Unless a state felt an urgent need for additional revenue, it might be loath to take action depriving its residents of the federal reduction. The Commission felt strongly that it was no part of its duty to recommend tax decrease (or increase); with respect to this it should be neutral. Accordingly, it declared that the new credit should be "conditional upon certification by the Governor to the Secretary of the Treasury that the estimated annual revenue level of his state's death taxes has been raised in an amount corresponding to the estimated aggregate increase in the tax credits on federal estate returns filed from his state. This Commission further recommends that the states be required to maintain these higher tax rate levels for a period of five years."¹⁰

⁸ *Ibid.*, p. 64.

⁹ *Ibid.*, p. 76.

Estate taxes: While the new credit, coupled with revenue-maintenance, would provide the states with additional revenue, it would, in itself, do nothing to alleviate the complexity of death taxation, a complexity "due largely to the prevalence of inheritance type taxes among the States." Tax simplification was an important objective, and therefore the Commission recommended "that the higher federal estate tax credit . . . be limited to estate type State taxes, as distinguished from inheritance taxes."¹¹

If the new plan is accepted by the Congress, if the states dutifully shift to estate taxes, and if many of them conform these taxes to the federal model, some may "prefer to forego their independent death taxes with their duplicate compliance and administration in exchange for a corresponding share of Federal collections." The Commission wished to facilitate this development "when and if a consensus develops among the States in favor of central collection and State sharing . . ."¹²

During its deliberations the Commission had, of course, considered whether death taxes should be *exclusively* a federal or a state source of revenue. On economic grounds, the case for sole federal jurisdiction was strong. But on other grounds such a step was not feasible, and the Commission, therefore, considered another alternative. Was it possible to split death taxation according to the size of estates, giving the federal government exclusive jurisdiction

¹⁰ *Ibid.*, p. 18. Revenue-maintenance had been recommended by the Joint Federal-State Action Committee as a condition for federal relinquishment of part of the tax on local telephone service.

¹¹ *Ibid.*, p. 20.

¹² *Ibid.*, pp. 21-22.

over large estates, and the states over small ones? Would a 100 per cent credit for state taxes on small estates provide such a split? Some state administrators were fearful of this plan, feeling that the Internal Revenue Service would have no interest in "credit only" returns, and would, therefore, be slack in administering this part of the tax. The Commission observed also that elaborate administrative arrangements were not justifiable for the modest amounts of revenue derived from death taxation.¹³

¹³ The Commission explored division of the death tax field through a high federal exemption. Again, some state administrators were reluctant because they valued federal administrative help in property valuation, credits, etc. (p. 87).

The plan of the Advisory Commission represents a serious attempt to move toward coordination of death taxation. The bait of a larger credit, combined with a requirement of revenue-maintenance, is to persuade the states to substitute estate for inheritance taxes. These are modest and reasonable proposals. The Commission recommends a two-step graduated credit in an effort to make available relatively larger new revenues to the poorer states. The results to be obtained here must be slight because state death taxes, under any circumstances, will be unequally productive. The desideratum, toward which the new credit may be a step, is complete federal jurisdiction.

THE USEFULNESS OF COMPARATIVE STUDIES OF STATE TAX SYSTEMS

WAYLAND D. GARDNER *

COMPARATIVE studies are popular among students of state and local taxation. The availability of statistics and a wholesome curiosity about how the "other fellow" does things undoubtedly contribute to this popularity. More substantial justifications for comparative studies do exist, however. An especially useful aspect of comparative studies lies in the exposure of impressive interstate differences which arise from apparently minor variations in tax laws and procedures. Comparative studies are valuable in this area, since these oftentimes important deviations might otherwise go unobserved. Moreover, clearly desirable modifications in one's own procedures may actually be demonstrated in everyday practice just across the state boundary.

This article reports some findings of a comparative study of state and local taxes in five states in the northern great plains area, namely, Montana, Nebraska, North Dakota, South Dakota, and Wyoming. These states possess many characteristics in common; an agricultural or ranching economic base, sparseness of population, expansive distances, etc. Notable differences exist, however, in their approaches to government finance. Only two of these states (Montana and North Dakota) derive significant portions of state and local tax revenues from levies based directly on income.

Three of them (North Dakota, South Dakota, and Wyoming) utilize general sales taxes. Nebraska uses neither of these tax bases, and chooses to rely heavily on property tax revenues. Only North Dakota carries the full slate of customary state and local taxes, including both an income and a general sales tax.

A comparison of the extent to which these states rely on various tax bases is provided in Table I. In this table, reliance is expressed in terms of the percentage of total state and local tax revenues which each state derives from the various tax bases.¹ Notable differences in tax structures are apparent even to casual observation. However, differences in the effectiveness of particular taxes are almost equally impressive. The remainder of this article focuses attention on several such "internal" differences in state and local taxes.

General Sales and Use Taxes

General sales and use tax collections in the northern plains states provide an illustration of differences between taxes which, superficially at least, are quite similar. Each of the sales and use tax states in the comparison group (North Dakota, South Dakota, and Wyoming) imposed a 2 per cent retail sales tax ac-

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¹ As used in this paper, tax revenues exclude revenues from the federal government and receipts from special assessments, insurance contributions, government enterprises, interest, special charges, etc.

company by a use tax with the same rate during the period studied. Interestingly enough, however, Wyoming's 1957 sales and use tax collections exceeded those in the other states by impressive amounts when expressed in per capita terms or as a per cent of estimated average retail sales in 1956 and 1957 (see Table II). On the other hand, collections were roughly equal among those states when related to 1956 personal income. According to the

matched, although Wyoming still led the group. Thus, attention was focused on Wyoming's use tax, which apparently was much more productive than its counterparts in the other two comparison states, even though all carried the 2 per cent rate.

A clue to the cause of Wyoming's lead in use tax collections was provided by the statistic that, in fiscal 1957, 21.6 per cent of these collections came from petroleum and petroleum product man-

TABLE I
PERCENTAGE DISTRIBUTION OF STATE AND LOCAL TAX REVENUES, BY SOURCES,
FIVE NORTHERN PLAINS STATES, 1957

Tax Base	Montana	Nebraska	North Dakota	South Dakota	Wyoming
Property	53.8	69.9	52.8	58.2	51.4
Sales and gross receipts ..	20.1	20.6	29.9	28.4	33.8
General .....	....	....	13.2	11.5	15.9
Motor fuel	14.0	14.9	9.9	9.8	14.1
Alcohol and tobacco ...	4.1	3.4	5.4	3.6	2.1
Other	1.9	2.3	1.4	3.4	1.7
Income	7.9	....	4.3	2	....
Individual	6.0	....	3.2	....	....
Corporation	1.9	....	1.1	2	....
Licenses	9.9	8.0	11.0	11.9	14.1
Motor vehicle	5.2	4.9	8.0	8.8	8.6
Other	4.7	3.2	3.0	3.1	5.6
Death and gift	1.1	.3	.4	.7	.4
Other and unallocable	2.8	1.1	1.5	.7	.3
Total *	100.0	100.0	100.0	100.0	100.0

* Detail may not add to total because of rounding.

Source: Computed from *U. S. Census of Governments: 1967*, Vol. III, No. 5, Table 21, p. 29.

"sacrifice index," Wyoming's collections were greatly below the others.

Income and population differences help to explain all of these variations except that relating to estimated average retail sales. Here Wyoming's collections markedly exceeded those in the comparison states, amounting to 2.32 per cent of retail sales, compared to 1.82 per cent and 1.95 per cent in the other states. On sales tax collections alone, as distinguished from use and sales taxes combined, the states were rather evenly

manufacturers, traders, and jobbers. Wyoming's use tax undoubtedly benefited much from the presence of a petroleum industry of greater magnitude than existed in the other comparison states. Vigorous application of the use tax to this industry may play an important role in the productivity of this tax.

Second rank in Wyoming's use tax collections went to the automobile, aircraft, and bicycle group. In South Dakota, the low level of use tax collections may relate to special procedures appli-

cable to this group. That is, the low level of use tax collections in South Dakota may have derived from the fact that motor vehicles were subject to a special levy in that state, a levy not included in the use tax category.

These sales and use tax comparisons illustrate that a given rate may yield widely differing results in different states. If tax regulations and administration fall with particular effectiveness on especially important elements in the

levies made up 41.5 per cent of state (as distinguished from local) tax collections in Nebraska in fiscal 1957, compared to 30.0 per cent in South Dakota, 29.7 per cent in Montana, 21.4 per cent in Wyoming, and 20.6 per cent in North Dakota.

Tax rates per gallon on motor fuels differ among the states. However, rate differences alone fail to explain variations in motor fuel tax collections among the states. Table III lists net

TABLE II
COMPARATIVE MEASURES OF SALES AND USE TAX COLLECTIONS,
NORTH DAKOTA, SOUTH DAKOTA, AND WYOMING, 1957

	North Dakota	South Dakota	Wyoming
Collections per capita* (\$)	22.04	18.77	30.50
Collections as per cent of 1956 personal income ^b (%)	1.57	1.44	1.59
Collections as per cent of average retail sales, 1956 and 1957 ^c (%)	1.95	1.82	2.32
Sacrifice index ^d .....	.00112	.00110	.00083

* Fiscal 1957 collections. Population as of July 1, 1957.

^b Income for 1956 is used because spending is assumed to come out of past income.

^c Simple average of retail sales estimated for calendar years.

^d Collections as per cent of 1956 personal income divided by 1956 per capita personal income.

[For a discussion of this index, see Henry J. Frank, "Measuring State Tax Burdens," *National Tax Journal*, Vol. 12, No. 2 (June, 1959).]

Data sources: *U. S. Census of Governments: 1957; Compendium of State Government Finances for 1958; Sales Management*, May 10, 1957, and May 10, 1958.

state's economic base, revenue collections may deviate significantly from what might be expected from a similar tax and a comparable rate in a different jurisdiction.

Motor Fuel Taxes

Motor fuel taxes provide another illustration of important interstate differences which exist in spite of apparently similar tax rates and definitions. Motor fuel taxes are of great importance throughout the nation and especially in the great plains areas, where per capita highway mileage is great. Motor fuel

motor fuel tax revenues, the gasoline tax rate, and the number of gallons of fuel consumed in each of the comparison states, and indicates the net collections in each state per gallon consumed for each cent of the gasoline tax rate.²

Differences in the quantities of fuel consumed clearly are of great importance in determining the yield of motor fuels taxes. However, the most critical aspect of motor fuel taxation within

² It is recognized, of course, that different tax rates frequently apply to different types of fuels. However, the gasoline rate appears to predominate sufficiently to justify its use in these comparisons.

reach of legislative or administrative jurisdiction appears to lie in refunding or exemption allowances. When net collections were divided both by the rate level and by the estimated number of gallons consumed in the state, notable differences appeared among the states in the comparison group. In fiscal 1957, net collections per gallon consumed for each cent of the gasoline tax levy ranged from 0.91 cents in Wyoming down to

agricultural of the states in the comparison group.

Nonhighway uses of motor fuel are more important in some states than in others. Where nonhighway use is of great importance, as in predominantly agricultural areas, the impact of refunds and exemptions suggests that these policies should be conceived and administered with particular care. Failure to observe these factors can have serious

TABLE III

MOTOR FUEL TAX COLLECTIONS, GROSS CONSUMPTION, GASOLINE TAX RATES, AND NET COLLECTIONS PER GALLON FOR EACH CENT OF GASOLINE TAX LEVY, NORTHERN PLAINS STATES, FISCAL 1957

	Gross Consumption (thousands of gallons)	Gasoline Tax Rate * (cents per gallon)	Total Net Collections (thousands of dollars)	Collections Per 1¢ Levy Per Gallon ^b (cents)
Montana	310,781	7	17,681	0.84
Nebraska	604,446	6	29,947	0.83
North Dakota	328,233	6	10,638	0.54
South Dakota	342,816	5	11,076	0.65
Wyoming	180,350	5	8,166	0.91

* Rates in effect as of September 1, 1956. Although rate changes may have occurred during the fiscal year, these rates probably applied during most of the period under consideration.

^b Collections for fiscal 1957, per one cent of gasoline tax levy as of September 1, 1956, per gallon of consumption in calendar 1957.

Sources: Consumption data from U. S. Department of Commerce, Bureau of Public Roads, *Highway Statistics, 1957*, Table G-2, p. 2. Rate data from Tax Foundation, *Facts and Figures on Government Finance, 1956-7*, Table 119, p. 147. Collections data from U. S. *Census of Governments: 1957*, Vol. III, No. 5, Table 21, p. 29.

0.54 cents in North Dakota. Montana collected 0.84 cents, Nebraska 0.83 cents, and South Dakota 0.65 cents.

Motor fuel tax refunds generally are based on claims that fuels have not been used on highways. Nonhighway uses generally were taxable in Wyoming, and this did much to explain Wyoming's high standing in net collections per gallon for each cent of tax. Where refunds for nonhighway use were allowed, agriculture was the chief claimant, and North Dakota's low collections per gallon for each cent of levy may have arisen, in part at least, from her being the most

revenue consequences. Moreover, the competitive aspects of motor fuel pricing probably imply some restraint in the adjustment of motor fuel tax rates themselves, so that refund and exemption standards may be more readily within the legislative discretion than are other approaches to highway finance.

Individual Income Taxes

Individual income taxes provide yet another example of interstate differences in the use of a particular tax base. Only Montana and North Dakota, in the comparison group, utilized individual income

taxation in the period studied.³ However, the differences between these two states were numerous and significant.

North Dakota's rate structure was notable for its steep progression and relatively high rates on incomes above \$5,000. However, relatively few individuals were subject to these higher rates, and North Dakota's individual income tax yielded less than half as much revenue as its Montana counterpart for 1957, as shown in Table IV. Higher rates and narrow brackets in the lower income

taxable returns filed were subject to no more than the 1 per cent rate applicable to taxable incomes up to \$3,000.

Although populations were roughly equal in the two states, 39 per cent more returns were filed in Montana for the 1957 tax year than in North Dakota in fiscal 1958. Montana's higher level of personal income, her somewhat more stringent filing requirements, and her use of withholding probably were responsible for much of this difference. Montana's use of withholding, however,

TABLE IV
INDIVIDUAL INCOME TAX REVENUES, PER CAPITA, AS A PER CENT OF PERSONAL INCOME,
AND AS A SACRIFICE INDEX, MONTANA AND NORTH DAKOTA, FISCAL 1958

	Total Collections (thousands of dollars)	Collections Per Capita (dollars)	Collections as Per Cent of Personal Income	Sacrifice Index
Montana	9,300	13.86	.736	.000388
North Dakota	3,717	5.76	.402	.000280

Sources: Revenue data from U. S. Bureau of the Census, *Compendium of State Government Finances in 1958*, Table 5, p. 11. Personal income (calendar 1957) and population (July 1, 1957), *Ibid.*, Table 39, p. 57.

area made the individual income tax a much more potent instrument in Montana than in North Dakota in each of the comparisons outlined in Table IV.

The impact of Montana's higher low bracket rates was shown by comparing hypothetical tax bills for comparable family situations in the two states. For a family consisting of husband, wife, and two children and claiming a 10 per cent personal deduction, the Montana tax liability remained above that in North Dakota on incomes well beyond the \$10,000 level. In North Dakota for the 1957 tax year, 88 per cent of the

cast an interesting sidelight on the view that withholding sometimes burdens the tax administration with many refunds and the processing of many nontaxable returns. The comparison of Montana and North Dakota indicated that the problem of nontaxable returns related also to factors other than withholding. Montana's administration registered concern over the 11.6 per cent of their 1957 returns which proved to be nontaxable. North Dakota's problem was much greater, however, although withholding was not in use. In fiscal 1958, fully 37.8 per cent of the returns filed in North Dakota were nontaxable, in spite of North Dakota's somewhat more liberal filing requirements.⁴

³ South Dakota imposed a corporation income tax, but this levy applied only to banks and selected financial institutions and yielded only 0.2 per cent of state and local tax revenues in fiscal 1957.

⁴ See next page.

The high proportion of nontaxable returns in North Dakota may arise from particular features of the tax law or it may indicate merely the difficulty of applying an income tax with exemptions in an agricultural area or where the typical income is relatively low. These latter circumstances probably do place especially great burdens on income tax auditing and administration and, in an agricultural area, the solution to the problem may lie elsewhere than in withholding. North Dakota's recent federalization of her income tax return may provide some aid in this area.

Summary

The preceding examples have been presented to illustrate the view that the

effectiveness of particular taxes for the support of state and local government cannot be appraised adequately by a mere examination of the rates imposed or of the tax base as defined by statute. Much depends upon the economic context in which the tax is applied and upon the administrative tools and standards which are employed.

It can be suggested that the usefulness of comparative studies of state tax systems arises directly from this consideration. These studies can indicate how given taxes actually function in differing economic or administrative situations, or, conversely, how slight variations in statutes or administration can produce divergent results when applied to generally similar economic situations. In this way, comparative studies can become a means whereby students of government finance can interpret and utilize the vast reservoir of experience and experiment present in the tax systems of the 50 states of the nation.

⁴ Many nontaxable returns also probably arose from the fact that North Dakota's income tax allowed no splitting of income on joint returns but did allow husband and wife to divide personal exemptions between their separate returns at their own discretion.

MEASURING LOCAL GOVERNMENT OUTPUT A COMMENT

HARVEY SHAPIRO *

THE December 1960 issue of the *National Tax Journal* contained an article by Professors Schmandt and Stephens titled "Measuring Municipal Output." The authors attempted to test the findings of several earlier studies,¹ which suggested that population size and per capita municipal expenditures are unrelated even when service levels are taken into consideration.

The problem of defining service levels for the varied functions performed by local governments is a thorny one and, at present there are no completely satisfactory measures of such levels. Professor Schmandt and Stephens present an index that measures each general municipal service (i.e. police protection) by the number of different subactivities (i.e. patrolling, operating traffic lights etc.) performed under the general function.

Using this index, they found high

(rank) correlations between service level and the following variables: Population, age of municipality, and total expenditures. A lesser degree of correlation was found between service level and population density. These positive results, which differ from those found in the earlier studies, led the authors to conclude that their index might be useful in measuring the performance of local governments and to call for further testing.

This paper is intended to describe the results of applying the Schmandt-Stephens index to a form of local government—the county—which was relatively neglected in the studies mentioned above. Because differences in State laws regarding county government activity handicap comparisons across State boundaries, the study was limited to one State—Wisconsin. Sixty-six of Wisconsin's 71 counties are the subject of this inquiry. Four counties² were omitted because of lack of data and one county (Milwaukee) was excluded because of legal provisions that set this county's government apart from the others in the State.

Variation in County Activities

In Wisconsin, as in most other states, the county was created primarily to act as an agent of the state in undertaking "functions regarded as largely or primarily of State concern." These func-

² Dunn, Forest, Marinette, and Price.

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¹ Amos H. Hawley, "Metropolitan Population and Municipal Government Expenditures in Central Cities," *Journal of Social Issues*, Vol. VII, 1951. Stanley Scott and Edward T. Feder, *Factors Associated with Variations in Municipal Expenditure Levels*, Bureau of Public Administration, University of California, Berkeley, 1957. Harvey E. Brazier, *City Expenditures in the United States*, National Bureau of Economic Research, New York, 1959. Werner Z. Hirsch, "Expenditure Implications of Metropolitan Growth and Consolidation," *Review of Economics and Statistics*, Vol. 41, No. 3, August 1959. "Determinants of Public Education Expenditures," *National Tax Journal*, Vol. XIII, No. 1, March 1960.

tions are, for the most part, those which any government has to perform to secure its own existence such as the collection of revenue, . . . the provision of highways and the care of the poor. All of these the State itself would have to do if there were no local areas of government."³ However, Wisconsin counties have "considerable discretion in deciding to perform certain activities and in determining the level at which they shall be carried on."⁴ It is, therefore, important to recognize that although the county has the authority to perform and does perform local services, many of the activities included in the index of local performance are state functions.

Considerable difference exists in the number of services provided by the counties in each subcategory (Table I). The variation ranged from 13 to approximately 65 per cent.

In an attempt to account for this variation, the data were analyzed by multiple regression techniques. Each of the nine items listed in Table I was correlated with the following independent variables:

- (1) Total population;
- (2) Area in square miles;
- (3) Population density (per square mile);
- (4) Full-value property;
- (5) Percentage of full-value property in each county that is located within cities and villages;
- (6) Total expenditure (net of capital outlay and debt service);
- (7) Per capita expenditure (net of capital outlay and debt service).

³ Lane W. Lancaster, *Government in Rural America*, D. Van Nostrand Company, Inc., New York, 1952, p. 49.

⁴ Bureau of Government, *County Government Activity in Wisconsin*, University Extension Division, University of Wisconsin, Madison, April 1960, p. ix.

Items 1 through 5 are 1960 data and were derived from publications of the Bureau of the Census and the Wisconsin Department of Taxation.⁵ Item 6 was obtained from the 1957 Census of Governments.⁶ Item 7 was computed from the 1960 census release and from item 6.

Items 4 and 5 differ from their counterparts in the Schmandt-Stephens study. In that study, per capita rather

TABLE I
RANGE OF DIFFERENT COUNTY GOVERNMENT
ACTIVITIES IN WISCONSIN, 1958¹

Activity	Number of Activities		Coefficient of Variation ²
	Low	High	
Total activities performed	120	239	15.3
General government ..	49	87	14.0
Justice	7	22	18.2
Protection of persons and property	4	40	36.3
Highways	12	29	15.3
Education	10	39	23.0
Health	1	15	55.2
Welfare	8	17	13.2
Parks and conservation ...	15	65.9	

¹ Omitting the following counties: Dunn, Forest, Marinette, Milwaukee, and Price.

² Standard deviation
Arithmetic mean $\times 100$.

Source: Bureau of Government, *County Government Activity in Wisconsin*, University Extension Division, University of Wisconsin, Madison, April 1960, pp. 10-11.

than total property value was employed. The counterpart to Item 5 was percentage of land area developed. In regard to county government activities, this measure may be more meaningful. There

⁵ Bureau of the Census, *Advance Reports, Final Population Counts—Wisconsin*, November 28, 1960. *City-County Data Book, 1956*, Government Printing Office, Washington, D. C., 1957. Wisconsin Department of Taxation, *Property Tax 1959*, July 1960.

⁶ Bureau of the Census, *Government in Wisconsin*, Vol. VI, No. 47, Government Printing Office, Washington, D. C., 1957.

may be some relationship between the number and variety of activities the county undertakes and the number of people (or in this instance the amount of full-value property) who are located in the open country outside villages and cities. A final difference is the omission in this report of the item titled "age of municipality (date of incorporation)."

Statistically significant correlations between the variables to be explained and the explanatory factors were found for Items 1, 2, 3, 4, 6, and 7 (Table II). The coefficients of multiple determination (R^2) for these variables range from .213 to .420. This implies that approximately from 21 to 42 per cent of the actual variation around the State average (arithmetic mean) is associated with, and perhaps explained by, the variation in the explanatory factors.⁷ The remaining unassociated variation ranges from 79 to 58 per cent; it may be attributed partly to systematic factors that were not included in this regression and partly to random differences among the county governments in determining what services would or would not be provided.

The large percentage of unexplained variation in the various activities would raise serious questions concerning the reliability of interpretations based on these data. Future studies will need to consider additional explanatory factors, as well as improved measures of municipal output, to better explain the variations that occur between different governments.

Conclusions

The study reported employed multiple regression techniques in an effort to

account for the variation in the level of county government output. The Schmandt-Stephens index (the total number of separately identifiable activities performed by the local government) was used as the measure of governmental performance. The explanatory factors used to account for the variation in output were as similar as possible to the factors employed in that study.

While statistically significant correlations were obtained in six of the nine correlations, the results were considerably weaker than those obtained by Professors Schmandt and Stephens. The question of accounting for the differing results is immediately raised. The answer may lie in the differing forms of government studied. Cities and villages are service oriented in contrast to county government, which was created primarily to serve as an agent of the State. Many of its activities are undertaken for the State without regard to such variables as were used in this study. This situation could account for the lack of a statistically significant correlation that was found in three instances, as well as for the low degree of correlation appearing in the rest of the cases.

The comparisons with the Schmandt-Stephens study would have been more meaningful if it were possible to segregate from their other obligations the purely local governmental activities performed by the Wisconsin counties. Under these circumstances, it is conceivable that a greater degree of correlation would have been obtained. Future studies of county government that employ this index will need to overcome this difficulty.

⁷ See footnotes to Table II for a definition of this term.

CORPORATE DIVIDENDS AS A STABILIZER

RICHARD SPANGLER *

THE onset of a recession has one beneficial effect: it focuses attention upon the stabilizers inherent in our economy. These stabilizers are of two types: (1) the payout to consumers of funds which are paid out only to combat recession, and (2) the payout to consumers of funds not intended to combat recession, but which may have a stabilizing effect because of the manner in which the payout is varied over the business cycle. The first type, of which unemployment compensation is the outstanding example, receives more attention because the payout was conceived in the first place as a measure to combat depression and because the effects are more obvious. An example of the second type would be corporate dividend payments. Certainly they did not originate as anti-depression medicine, but this does not mean that they cannot be effective as a stabilizing influence.

Measuring the stabilizing effect of a payout which continues throughout the business cycle requires a target or norm against which to compare actual payouts. The norm with which actual payouts are compared in this study is a constant proportion of net profits paid out as dividends. If total dividend payments for the period 1950-58 are divided by the total of corporate profits for the same period, a mean payout of 52 per cent is obtained, and this is taken as the norm. (See Table I.) Of course

the real stabilizing effect of these divergences from the 52 per cent payout depends upon the fraction of the dividend dollar which goes into consumption. The estimates in the last column of Table I were based upon the finding that, on the average, sixty cents out of the dividend dollar is spent for consumer goods and services.

At least two conclusions may be drawn from the study. First, corporate dividend payments over the years from 1950 to 1958 were highly stabilizing relative to the hypothetical payout of a constant 52 per cent of net profits. In the boom year of 1950, consumption was retarded by an estimated \$1.6 billion from what it would have been with a 52 per cent payout. In the recession years of 1954 and 1958 consumption was increased by an estimated \$0.64 and \$1.54 billion respectively. Second, since the effect of dividend payments depends upon the distribution of stock by income groups, future benefits from this stabilizer can be increased to the extent that stock ownership can be broadened and the concentration of two-thirds of the value of stock in the \$10,000-and-up income brackets can be reduced. Tax measures, such as the recent dividend credit, may be used to encourage share ownership among middle income families. Elimination of the double tax on dividends also seems to be in order to encourage corporations to pay out a higher percentage of earnings, especially in recession periods. No doubt many

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TABLE I
THE STABILIZING EFFECT OF CORPORATE DIVIDENDS, 1950-58
(Billions of Dollars)

Year	Corporation Net Profits After Tax ^a	52 Per Cent of Net Profits	Dividends ^b	Divergence of Dividends From 52 Per Cent of Profits	Estimated Effects On Consumption ^c (Col. 4 x .60)
	(1)	(2)	(3)	(4)	
1950	22.8	11.86	9.2	-2.66	-1.60
1951	19.7	10.24	9.0	-1.24	-0.74
1952	17.2	8.94	9.0	+0.06	+0.04
1953	18.1	9.41	9.2	-0.21	-0.13
1954	16.8	8.74	9.8	+1.06	+0.64
1955	23.0	11.96	11.2	-0.76	-0.46
1956	23.1	12.01	12.0	-0.01	-0.01
1957	22.2	11.54	12.4	+0.86	+0.52
1958	18.9	9.83	12.4	+2.57	+1.54

Source: Data on profits and dividends from July, 1959, *Survey of Current Business*.

^a Before adjustment for inventory valuation.

^b Includes foreign dividends paid into U. S. minus U. S. Dividends paid out.

^c There were three steps involved in deriving the sixty-cent estimate: (1) to estimate the distribution of stock by income groups, (2) to determine the tax "bite" out of the dividend dollar, and (3) to estimate the amount saved out of the remainder after taxes. An estimate of stock distribution by income groups was derived from a table in the *Federal Reserve Bulletin*, June, 1955, p. 622. It was assumed that dividend dollars are distributed among the income groups in the same proportions as are the shares of stock in value terms. Effective income tax rates for the various income groups were taken from the 1954 Survey of Consumer Finances. Estimates of the amount saved by income group from the after-tax dividend dollar were obtained from Irwin Friend, *Study of Consumer Expenditures, Incomes and Savings*, Vol. XVIII (Philadelphia: Wharton School, 1957), p. 2.

other suggestions to strengthen this stabilizer can be advanced by experts in the field of taxation. Dividend payments, however, are not likely to replace unemployment compensation as the most important stabilizer in our economy. Payments of the latter type

totalled \$3.5 billion for 1958. Probably virtually all of these payments went for consumption expenditure. Nevertheless the stabilizing effect of corporate dividends should be acknowledged and strengthened wherever possible.

A NOTE ON TAX EXEMPTION IN A DEVELOPING ECONOMY

SIDNEY C. SUFRIN *

IN THE December 1960 issue of this journal Mr. Mohinder S. Bhatia¹ presented a persuasive argument concerning the beneficial effects of Puerto Rico's tax exemption policy. However, this favorable and enthusiastic analysis raises two questions which I believe are relevant to any discussion of tax exemption as an instrument of public policy in an emerging society. First, is a very matter-of-fact question. Does the granting of tax exemptions to new firms imply the creation of a competitive disadvantage for existing firms selling in the same market? Mr. Bhatia is not unaware of this but he does argue (p. 348) "Once tax exemption has been granted to a firm producing, say product A, the exemption should be made available to all those firms already producing such a product as an aid to modernization and expansion. Those grants will eliminate any discriminatory elements that would otherwise exist in the treatment of old firms and also help make them competitive." In my opinion this might be a somewhat cavalier treatment of a difficult problem, because to extend the policy of tax exemptions to older firms, to permit them to compete with newer

firms, might have great and untoward effects on tax receipts. Indeed, I can imagine a case in which small corporations would be formed by investors in an existing corporation, the purpose of the new corporation being to reduce the tax burden of the old corporation.

The second question which in part flows from the first, however, is of much greater significance. If tax exemptions are widely used and successfully induce new industry to develop in an emerging area the need for social overhead of various sorts, public betterments and public facilities tends to grow. These public activities must be paid for and in part the burden, then, must be levied on existing firms since the newer firms by definition are exempt from the tax burdens. If the rate of taxation on existing firms is not to be increased, possibly drastically, other sources of revenue must be found by the government. The most obvious source of revenue is of course the personal income tax, but increasing the personal income tax in an economy where trade unions have some political and economic power implies in its turn increasing wage rates and the wage bill. If the increases in wages affect the most or the more productive industries then all is well, but if the increase in wages spill over as is almost inevitable to the older and presumably less productive industries, then the burden of development is being placed upon the older less productive industries.

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¹ "Tax Exemption in a Developing Economy—a Case Study of Puerto Rico," *National Tax Journal*, Vol. XIII, No. 4, Dec. 1960, pp. 341 ff.

In my opinion some low wage, unproductive industries might tend to be a burden on the economy and their failure is of no great consequence if the demand for labor is high so that no unemployment results. However, if wages increase very rapidly and affect not the "sweated" industries but other traditional industries of the economy so that

unemployment becomes widespread the tax exemption program could conceivably be a hindrance to development rather than a help.

It would be interesting to learn of the effect of tax exemption on wage practices and policies, and of the relation between tax exemption and other taxes including personal income taxes.

RECONSIDERATION OF THE CAPITAL GAINS TAX—A COMMENT

RAYMOND L. RICHMAN *

PROFESSOR HAROLD SOMERS in his article in the December, 1960 issue of the *National Tax Journal*¹ analyzes the effects of the taxation of capital gains employing some of the erroneous assumptions which appeared in his original article.² Specifically, these assumptions were 1) a downward sloping to the right demand curve for a given security, and 2) as a point of departure, "the absence of a tax on capital gains".³ When one poses more realistic assumptions, namely, 1) that the demand for a given security is more accurately represented by a horizontal demand curve because other securities are nearly perfect substitutes, and 2) that capital gains are taxed at rates *lower* than those applicable to ordinary income (or more accurately, after Henry Simons, *yields*⁴) one arrives at quite different conclusions.

The existence of a tax on capital gains under the first more realistic assumption means that withholding a security one owns from the market in order to avoid

the capital gains tax will have no effect on the price of the asset at all.⁵ The shift of the supply curve to the left will leave the price unchanged because of the fact that demand is perfectly elastic. Figure 1 represents the situation under Professor Somers' assumption of a negatively sloped demand curve and Figure 2 under the assumption of a horizontal demand curve. Different securities are good substitutes for one another. The price of one cannot rise significantly if the prices of other securities, expectations unchanged, have not. Buyers will shift to the substitute securities rather than accept lower rates of return.

The second more realistic assumption is obviously the present situation with long-term capital gains being taxed at a maximum rate of 25 per cent compared with marginal rates up to 91 per cent applicable to dividends. Such favorable treatment of capital gains tends to discourage the retention of capital assets and to encourage disinvestment. While some asset holders will be deterred from realizing gains due to the prospective liability to tax, others will find the relatively lower rate a stimulus to realize and consume the gain. Thus, one cannot be certain *a priori* whether the incentive effects of favorable treatment of capital gains shifts the supply curve to

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¹ "Reconsideration of the Capital Gains Tax," *National Tax Journal*, XIII, No. 4, December 1960, pp. 289-309.

² "An Economic Analysis of the Capital Gains Tax," *National Tax Journal*, September 1948, pp. 226-232.

³ *Op. cit.*, p. 289.

⁴ Henry C. Simons, *Personal Income Taxation* (Chicago: University of Chicago Press), 1938.

⁵ "Incentive Effects of Alternative Tax Treatments of Capital Gains," *Proceedings of the National Tax Association*, 1960, wherein I consider this point and others at greater length.

Fig. 1

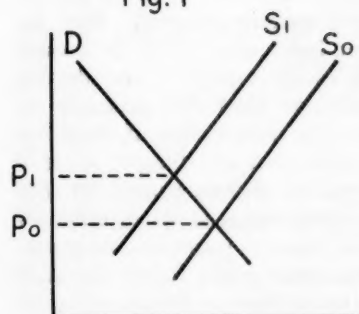
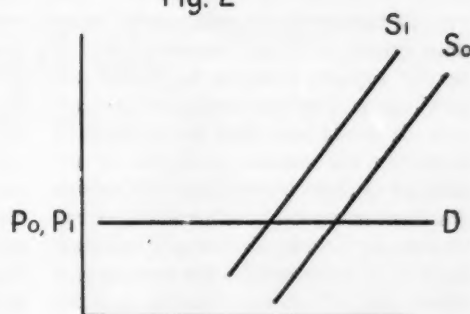


Fig. 2



the right or to the left. Securities are purchased with the expectation of realizing capital gains, which are as spendable as yields, and often in lieu of dividends insofar as they arise from retention and reinvestment of corporate earnings.

With respect to Professor Somers' discussion of the "locking-in" effect of the capital gains tax, it is not clear what is meant by the statement that "money is tied up in a particular stock"⁶ in the face of the fact that securities are sound collateral for the raising of capital, the requirements of margin notwithstanding, and the fact that the prospective purchaser's "money" is not tied up. The tax avoider is certainly not "depriving the *economy* of funds for the development of new enterprises"⁷ (*italics mine*). While the tax avoider's mobility of "capital" is somewhat impaired, it is easy to exaggerate the economic effects of this in the face of alternative methods of raising capital, the traditional role of the promoter who raises funds from others, and the economic insignificance of rolling-over into already existing securities. With respect

to the latter point, the purchase of outstanding securities is not investment from the social point of view. The purchase of a security and the purchase of a capital good should be distinguished. In the former case, the investment decision from the social point of view has already been made and financial resources committed.

Moreover, it is not clear that the realization of capital gains is at all socially desirable. The intended "investment" of the purchaser of the security or asset may be diverted into consumption, converting savings into consumption, hardly desirable from the standpoint of economic growth. Realized capital gains, or for that matter even unrealized capital gains!, will increase consumption. Though the realized capital gain is not part of permanent income, neither is the world cruise or the Las Vegas vacation which it might finance part of permanent consumption. Even unrealized capital gains, as an augmentation of wealth reducing the need to make provision for the future, may raise the average propensity to consume.

In the interest of economic growth, one would like to encourage investment

⁶ *Op. cit.*, p. 294.

⁷ *Ibid.*, p. 294.

in capital goods, capital formation. Favorable treatment accorded capital gains does create such an incentive, but it hardly appears desirable to extend the privilege to those purchasing *existing* assets. It would seem that the privilege of favorable tax treatment should be restricted to those making the original investment in capital goods, and dissavings by security holders discouraged by treating capital gains in all other cases as any other kind of personal income. Economic growth would be stimulated, and the "fast-buck" and "easy-buck" stock market fever abated.

As a final comment, when it comes to making prescriptions of economic policy, economists too often take the existing institutions for granted (for granite!).

The stock market may be in the need of reform as socially wasteful. New investment institutions might be created to raise equity capital at considerably less social cost than that presently involved in the maintenance of the elaborate stock market structure, its waste of resources, its discouragement of *real* capital formation, and its diversionary effects on business managers and executives who more often follow the daily market statistics or manipulate the price of stock in the companies they manage (witness the nonsense about stock splits and stock dividends) than spend their time and concentrate their energies on making their businesses function more economically and more dynamically.

A NOTE ON FEDERAL-STATE FISCAL CO-ORDINATION

LOUIS FIER *

SEVERAL writers have in recent times discussed the possibilities of coordinating federal and state fiscal and economic activities with a view to implementing national stabilization policies and to minimizing or offsetting the impact of violent fluctuations.¹ Generally, the emphasis has been on economic problems, especially those that manifest themselves during the downturn. The importance of federal-state cooperation during an inflationary spiral has also received adequate recognition. However, as Strayer has recently suggested, the tendency toward "the politicalization of the economy" may make such cooperation impossible or impracticable, unless this tendency is reversed.²

This note discusses one important example of a breakdown in federal-state cooperation in connection with stabilization policy during the Korean Conflict.

During the years 1950-1952, the federal government was attempting to combat the inflation that grew out of

the Korean Conflict. On May 6, 1951, the head of the Office of Defense Mobilization, Mr. Charles E. Wilson, sent a telegram to the Governors of the then forty-eight states informing them that any proposals to borrow \$1 million or more by states, cities, or counties, be submitted to a newly formed "National Voluntary Credit Restraint Committee" for approval.³ Mr. Wilson made his point clear and forceful:

You and the citizens of your communities will agree that this rule applies to state and municipal borrowing as well as to private borrowing. On behalf of our government I ask you to postpone borrowing, no matter how worthy the purpose, if the project is postponable. While many municipal projects are urgent, others might be set back to a time when they would contribute to maintaining a high level of employment in a period of slack business. Soldiers' bonus payments, many war memorials, and municipal recreational projects are but a few important examples of postponable projects which will serve the nation better at a future time.⁴

Just at that time West Virginia had planned to sell some \$65 million in bonds to finance a veterans' bonus. (West Virginia was relatively a latecomer in the field of state bonus payments; it

³ Appointed by the Board of Governors of the Federal Reserve System under the provisions of the Defense Production Act of 1950 to aid in controlling inflation.

⁴ *The New York Times* (May 7, 1951), p. 1.

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¹ E. C. Brown, "Fiscal Policies in the 'Thirties': A Reappraisal," *American Economic Review*, Vol. XLVI (Dec. 1956), 857-79; Mable Newcomer, "State and Local Financing in Relation to Economic Fluctuations," *National Tax Journal*, Vol. VII (June 1954), 97-109; Ansel M. Sharp, "The Counter-Cyclical Fiscal Role of State Governments During the 'Thirties,'" *National Tax Journal*, Vol. XI (June 1958), 138-45.

² Paul J. Strayer, *Fiscal Policy and Politics* (New York: Harper, 1958), pp. 177-201.

authorized the World War II bonus in 1950, and bonuses for World War I and the Korean Conflict in 1953.) The Committee advised postponing the sale of the bonds in the interest of containing the inflation and indicated that selling large amounts of bonus bonds tended to add to the spending power of the public at a time of existing excessive demand. They further urged that such

... Issues be postponed until a time when immediate purchasing power is needed to counteract unemployment and when it might be more beneficial to the veterans.⁵

Earlier in the same year, an editorial writer summed up West Virginia's problem and position:

Probably no better example could be found of the dilemma facing state and local government officials. Twenty states have since the end of the war sold veterans' bonus bonds issues totaling \$2,292,250,000, the flotations ranging from \$5,400,000 by Delaware to \$440,000,000 by Pennsylvania. Other war bonus bond issues either authorized or proposed, totaled \$1,519,000,000 at the start of this year, most of these reflecting the unsold tagends of authorized borrowings which may never become effective. Should West Virginia's relative tardiness in authorizing special war service benefits for servicemen now be penalized because of the inflationary character of bonus awards? ⁶

West Virginia's Governor O. L. Patterson replied to Mr. Wilson's request by informing him that he had "no alternative" but to proceed with the sale of the bonds as advertised because the people had voted "overwhelmingly" for the bonus payments, and the legislature had set up the necessary machinery.⁷

⁵ *The New York Times* (May 7, 1951), p. 18.

⁶ *The New York Times* (Feb. 2, 1951), editorial, p. 17.

⁷ *The New York Times* (May 8, 1951), p. 45.

Meanwhile rival syndicates formed to bid on the bonds agreed not to enter bids as long as no offer was to be made by any other major banking syndicate.⁸ A large investment banking group notified its 125 members "not to submit any bids to underwrite the West Virginia issue"⁹ after receiving a notice from the "Eastern Investment Voluntary Credit Restraint Committee" that the "proposed issue of bonus bonds did not conform with the principles of voluntary credit rationing."¹⁰ The day after this announcement, most of the large commercial banks indicated that they would join with the investment bankers in refusing to bid on the West Virginia issue.¹¹ When no bids were received by the designated date, the Governor announced that state officials would study other possible means of financing the bonus. The large veterans' organizations suggested that the bonds be offered to the state sinking fund, the Workmen's Compensation Commission, and other state agencies that invest large sums of public funds.¹²

On July 2, 1951, West Virginia's bonus bonds were rejected for the second time by the large investment syndicates, although the Governor said he had been assured that the bonds would be reconsidered "As soon as there is con-

⁸ *The New York Times* (May 8, 1951), p. 45.

⁹ The Defense Production Act of 1950 provided that lenders who cooperated in this fashion were to be exempted from the anti-trust laws.

¹⁰ *The New York Times* (May 11, 1951), p. 41.

¹¹ *The New York Times* (May 12, 1951), p. 25.

¹² In a table indicating amounts of bonds issued for financing veterans' bonuses, the following comment appears next to West Virginia: "None sold yet due to possible inflationary effect;" The Council of State Governments, *The Book of the States, 1952-1953* (Chicago, 1952), p. 238.

crete evidence that inflationary pressures have subsided."¹³ In September, 1951, with the bonds still unsold, the Governor announced a plan to sell \$75 million of bonus bonds on the retail market with state funds to be used to buy any unsold bonds. State banking officials generally endorsed the plan, and a committee of eleven bankers was appointed by the Governor to work out the details.¹⁴ When objections developed to this idea, it was announced that West Virginia would sell some \$8 million of its holdings of municipal bonds and use the proceeds for bonus payments.¹⁵ This was an attempt to overcome the objections to new bond issues at that time, but it did not remove the inflationary danger resulting from adding the bonus payments to the spending stream. This idea also, apparently, proved unworkable, and the state appealed to President Truman for a reversal of Mobilization Director Wilson's ruling. The President denied the appeal because of "inflationary implications."¹⁶

In the midst of this controversy, Oregon announced that it too, planned to sell two bond issues totaling \$40 million to finance a veterans' bonus, and Montana indicated it would borrow some \$20 million for the same purpose. The "Western Voluntary Credit Restraint Committee" immediately disapproved the proposals. Oregon state officials indicated that if no bids were received, the bonds would be offered to the State Bond Commission as an investment for state trust funds.¹⁷

By December, 1951, West Virginia had succeeded in selling \$37 million of the bonds. Of this amount, \$30,622,000 was purchased by local banks, private groups, and individuals, and the balance was taken up by state trust funds. No bids had come from any investment banking syndicate or group.¹⁸

Three months later, quite unexpectedly, President Truman ordered Director Wilson to exclude the financial actions of state and local governments from the nation's credit restraint program. The President was criticized for this move because it was

... Held in financial circles to have been an ill-advised delayed-action torpedo that in the beginning will require the whole restraint effort to be called off and in the end bring embarrassment to the Federal Government.¹⁹

This was all the more unusual because previously the President had indicated the extreme importance of "maintaining controls on prices, wages, rents and credit for another two years, at least," and that it was necessary to do this "without special exemption for special groups."²⁰ The President's directive gave governors and mayors the power to determine if prospective bond issues were inflationary. No reason was given by the President for his action by which he seriously damaged the "inflation restraint" effort initiated by his own appointed defense mobilizer. One can only guess at the political pressures employed. (It may be noted that both the Governor of West Virginia and the

¹³ *The New York Times* (July 3, 1951), p. 29.

¹⁴ *The New York Times* (Sept. 19, 1951), p. 48.

¹⁵ *The New York Times* (Sept. 27, 1951), p. 47.

¹⁶ *The New York Times* (Nov. 6, 1951), p. 43.

¹⁷ *The New York Times* (Oct. 2, 1951), p. 39.

¹⁸ *The New York Times* (Dec. 18, 1951), p. 55.

¹⁹ *The New York Times* (April 13, 1952), p. 1, 10.

²⁰ *The Wall Street Journal* (May 10, 1951), pp. 1, 3.

President belonged to the Democratic party at the time.)

The three states affected by the credit restraint program immediately set about to sell their bonus bonds. Montana, for whose bonds no bids had been received, had tentatively arranged to sell them to several large insurance companies at a higher rate of interest. With the announcement, the bonds were readvertised, and bids were accepted on May 5, 1952, for approximately \$22 million of bonus bonds at an average interest cost of 2.9193 per cent.²¹ Similarly, Oregon had no difficulty in selling \$46 million of bonus bonds, and West Virginia was able to obtain the balance of \$30 million needed to complete the payment of its veterans' bonus.²² Later in the same year Louisiana was able to borrow \$46 million to refinance its bonus bonds at a lower rate of interest. Because of the

relaxation of the credit restraint program the offering resulted in "an unusually wide response."²³

An outstanding authority in the field of public finance, Professor John F. Due, has recently stated that a major obstacle to the utilization of effective fiscal policy in connection with federal-state coordination "is the perverse action of states and local governments, which tend to carry on policies exactly opposite from that necessary for successful economic stabilization."²⁴ He suggests the solution may lie in the direction of more effective financial coordination. Undoubtedly, this technique will help a great deal. However, if the perverse fiscal action is related to non-economic, external, or political factors, as described in this note, other techniques will be required.

²³ *The New York Times* (Nov. 11, 1952), p. 39.

²⁴ John F. Due, *Government Finance* (Homewood, Ill.: Richard D. Irwin, Inc., 1959), p. 554.

²¹ *The New York Times* (May 6, 1952), p. 41.

²² *The New York Times* (April 25, 1952), p. 36.

NTA NOTES

From the President

The Committee on Intergovernmental Fiscal Relations, under the Chairmanship of Alfred G. Buehler, is continuing as a very active committee. As a matter of fact, a meeting of the Committee has been called for Washington, D. C., in January. The writer has felt that he should resign membership on the Committee, in view of the fact that he was elected President of the Association in Seattle last September. To fill that vacancy, Mr. James M. Windham, Assistant Attorney General of South Carolina, Counsel for the South Carolina Tax Commission, has been named and has indicated his acceptance. In addition, this Committee has been enlarged by the appointment of Guy J. Rizzotto of Massachusetts, Charles M. Dougherty of Pennsylvania and Walter L. Kidd of New York.

The expiration of the terms of the following members of the Editorial Advisory Board of the *National Tax Journal*: Messrs. Louis C. Dorweiler, Jr. of Minnesota, James E. Luckett of Kentucky, now in Thailand, and Earl Rolph of California, makes it necessary to appoint three new members. Mr. Earl Rolph has been reappointed, and Messrs. John Gronouski of Wisconsin and Leslie Carbert of California have been named to fill the vacancies.

The appointments to the Conference Arrangements Advisory Committee are as follows:

Leo Mattersdorf, *Chairman*
Stanley J. Bowers of Ohio
Nathan H. Mitchell of New York
Edward J. Notske of Washington
Philip S. Robira of Texas
Theodore K. Warner, Jr. of Pennsylvania

Carter Louthan of New York has indicated his desire to be relieved of his duties as Chairman of the Committee on Bank Taxation, but has been prevailed upon to retain membership in that Committee. Myron A. Zizzamia, of New York, who was a member of the Committee, has been appointed Chairman to replace Mr. Louthan. This Committee has been enlarged by the addition of Harry F. Schroeder of New York and Richard B. Keck of Illinois.

The Model Property Tax Assessment and Equalization Methods Committee, of which Dr. Arthur D. Lynn, Jr. is Chairman, has been enlarged by the ap-

pointment of Thomas F. Carlin of New Jersey and Henry J. Dohrmann of North Carolina.

The Interstate Allocation of Business Tax Committee, under the Chairmanship of Fred L. Cox, has been enlarged to include Charles S. Seligman of Pennsylvania.

Preliminary plans for the Conference at Miami Beach are beginning to take shape. Dr. William D. Ross of Louisiana and James S. Currie of North Carolina have been appointed Co-Chairmen of the Program Committee. Ray E. Green has been appointed Honorary Chairman and George K. Roller, Jr., Executive Chairman of the Local Arrangements Committee. I am sure that both these Committees would welcome any suggestions which might be helpful to them in preparing for the Conference in Miami Beach, September 3-7, 1962. Both Committees are faced with a difficult job in following the highly successful meeting in Seattle, although I am certain that the Miami Beach Conference will equal or exceed the success which obtained in Seattle.

Again, I sincerely request you to make any suggestions as to the Miami Beach Conference, or any other matter. Expression of your suggestions or your wishes will be considered very helpful and will be most welcome.

OTIS W. LIVINGSTON

President

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From the Executive Director

President Livingston has requested me to include in my part of the *Notes* the membership of the several Study Committees of the Association and of the *Journal* Editorial Advisory Board, with the inclusion of the new appointments and other changes as outlined and comprehended in his foregoing *Notes*.

They follow:

BANK TAXATION

MYRON M. ZIZZAMIA, *Chairman*

	New York	DIXWELL L. PIERCE	California
ALFRED G. BUEHLER	Pennsylvania	A. G. QUAREMBA	New Jersey
RICHARD B. KECK	Illinois	MARTIN SAXE	New York
CARTER T. LOUTHAN	New York	JAMES SAXON	Illinois
IRA J. PALESTIN	New York	HARRY F. SCHROEDER	New York

COST OF TAX COMPLIANCE AND ADMINISTRATION

AARON K. NEELD, <i>Chairman</i> New Jersey	HARRY L. HULMAN Illinois
CARTER W. ATKINS Connecticut	WALTER L. KIDD New York
JAMES S. CURRIE North Carolina	LEWIS E. LINT Iowa
CHESTER M. EDELMANN New York	ARTHUR D. LYNN, JR. Ohio
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FEDERAL EXCISE TAXATION

CLARENCE HEER, <i>Chairman</i> North Carolina	CLAUDE W. HUPP Kentucky
JOHN F. DUE Illinois	WALTER L. KIDD New York
L. A. GROTEWOHL Illinois	L. C. METZGER New York

INTERGOVERNMENTAL FISCAL RELATIONS

ALFRED G. BUEHLER, <i>Chairman</i> Pennsylvania	M. M. KASELL New York
STANLEY J. BOWERS Ohio	WALTER L. KIDD New York
M. L. BOYDSTON Illinois	MARTIN LAUTERBACH Iowa
M. P. BROGAN Nebraska	CLARENCE W. LOCK Michigan
CHARLES F. CONLON Illinois	CARTER T. LOUTHAN New York
WILLIAM F. CONNELLY Connecticut	RUSSELL M. MACK Ohio
JOHN DANE, JR. Massachusetts	DIXWELL L. PIERCE California
CHARLES M. DOUGHERTY Pennsylvania	GUY J. RIZZOTTO Massachusetts
ROBERT S. FORD Michigan	L. EDWIN SMART Ohio
L. C. HOLT Virginia	R. H. WATERMAN Missouri
	JAMES M. WINDHAM South Carolina

INTERSTATE ALLOCATION OF BUSINESS TAXES

FRED L. COX, <i>Chairman</i> Georgia	WILLIAM KINGSLEY New Jersey
JOHN J. CAMPBELL California	JAMES E. LARSON Alabama
FRANCIS S. CASSIDY New York	C. Z. MOORE Texas
E. M. ELKIN Pennsylvania	WILLIAM E. SCENT Kentucky
HAROLD M. GROVES Wisconsin	CHARLES S. SELIGMAN Pennsylvania
JEROME R. HELLERSTEIN New York	M. CLYDE SHEAFFER Pennsylvania
PAUL HOLT Utah	JOHN A. VORDERMAN Texas

MODEL PROPERTY TAX ASSESSMENT AND EQUALIZATION
METHODS

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CHARLES F. CONLON Illinois	PHILIP S. ROBIRA Texas
HENRY J. DOHRMANN North Carolina	WILLIAM D. ROSS Louisiana
ALAN G. GORNICK Michigan	RONALD B. WELCH California

TO DETERMINE APPROPRIATE NTA RESEARCH PROJECTS

STANLEY J. BOWERS, <i>Chairman</i> Ohio	LOUIS SCHREIBER Delaware
H. KENNETH ALLEN Illinois	LAWRENCE E. THOMPSON Massachusetts
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Paul Studenski

Professor Paul Studenski, long an active member of NTA and Professor Emeritus of New York University, passed away since the Seattle Conference. His contributions to the Association in the form of excellent dissertations on public finance and taxation will be greatly missed as well as his spirited and intelligent participation in discussions at the conferences.

Executive Committee Meeting

President Livingston has called a meeting of the Executive Committee of the Association on January 15-16, 1962 at the Conrad Hilton Hotel in Chicago.

Membership

Vice President C. Emory Glander, the new Chairman of the Membership Committee, is appointing sub-chairmen in the different categories and plans an active campaign for members.

Membership is the lifeblood of the National Tax Association.

PLEASE USE THE ATTACHED CARD

WALTER J. KRESS
Executive Director

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Walter J. Kress, Executive Director

National Tax Association

905 Payne-Shoemaker Building, Harrisburg, Pennsylvania

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July, 19.... ☐
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 Jan., 19.... ☐
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NATIONAL TAX ASSOCIATION

Organized 1907—Incorporated 1930

OBJECT. The National Tax Association is a non-political, non-sectarian, and non-profit-making educational organization. Its object, as stated in its certificate of incorporation, is to educate and benefit its members and others by promoting the scientific study of taxation and public finance; by encouraging research; by collecting, preserving, and diffusing scientific information; by organizing conferences; by appointing committees for the investigation of special problems; by formulating and announcing, through the deliberately expressed opinion of its conferences, the best informed thought and ripest administrative experience available; and by promoting better understanding of the common interests of national, state, and local governments in the United States and elsewhere, in matters of taxation and public finance and interstate and international comity in taxation.

MEMBERSHIPS. The Association welcomes to its membership, for mutual discussion and deliberation, all who may be interested in taxation and public finance generally. Annual dues are: memberships for students in recognized institutions of higher learning, \$10; memberships for government agencies, schools, and persons receiving more than one-half of their income from employment by such agencies or schools, \$10; memberships for other individuals and unincorporated entities, \$25; corporate memberships, \$100; persons wishing to contribute more liberally to the support of the Association, \$100 to \$1000.

PUBLICATIONS. The NATIONAL TAX JOURNAL is published quarterly in March, June, September, and December. PROCEEDINGS of the annual conferences on taxation which are sponsored by the Association are published soon after the meetings. The JOURNAL and the PROCEEDINGS are sent to members without charge. To non-members the price of the JOURNAL is \$5.00 per year, single numbers, \$1.50. The prices of the PROCEEDINGS vary; that of the 1960 volume is \$15.00.

Applications for membership, orders for publications, and general inquiries should be addressed to Walter J. Kress, Executive Director, National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania.

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